ENGINEERING NEWS-RECORD

Mexico rushes work on project to make productive 100,000 acres of desert land

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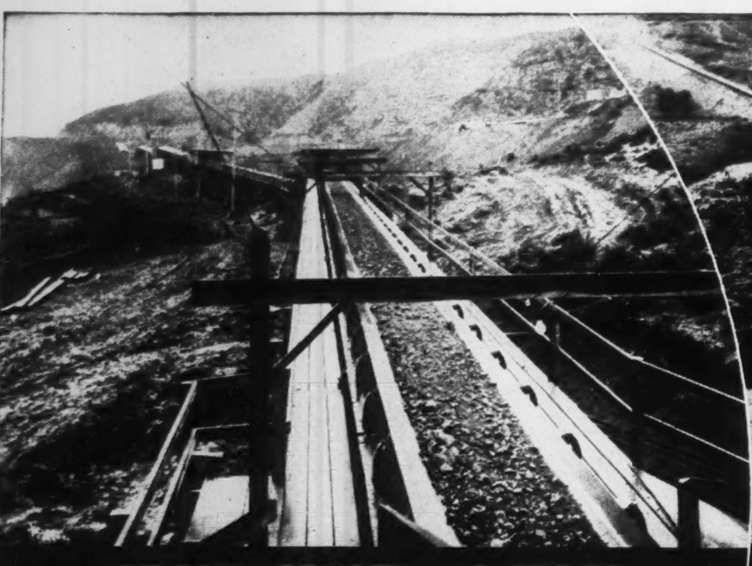


GRAND COULEE . . . 2 MILES

SAN JOSE . . . 4 MILES

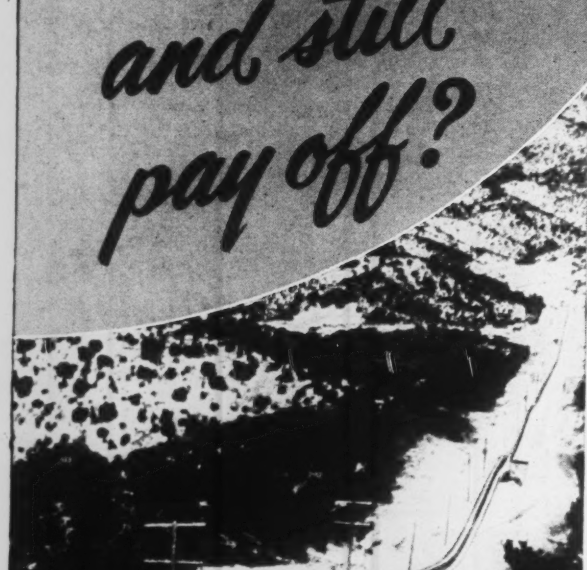
HOW LONG CAN A CONVEYOR BE . .

and still pay off?

On large construction projects, conveyors have long been the accepted tool for moving bulk materials in a continuous flow over short and medium distances . . . but how about relatively long hauls? Based on present data, 30 to 50 miles is probably the economic limit—one conveyor now under consideration would be 38 miles long, and there is every reason to believe that conveyor lengths may reach 50 miles in the near future.

Regardless of the length to which conveyors may grow, their electrification will not be a limiting factor. One-point electric control for the entire conveyor system is now possible, as well as electrical interlocking to prevent piling-up of material at flight junctions. On downhill runs, conveyor drive motors can function as generators and pump power back into the line . . . one conveyor system actually generated more power than it consumed, once it was placed in motion

Conveyors are just one of many electrified construction tools on which General Electric engineers are working in co-operation with equipment manufacturers and contractors to speed construction and keep initial, operating, and maintenance costs at a minimum. Ask your G-E representative how electrification of your construction equipment can help you make a better product at lower cost. *General Electric Company, Schenectady 5, N. Y.*



SHASTA . . . 10 MILES

GENERAL ELECTRIC

News of the Week

ENGINEERING NEWS-RECORD • JANUARY 30, 1947 • VOLUME 138 • NUMBER 5

CPA ceiling on non-residence building lifted to $50 million

Increasing construction costs, need to furnish services to new housing, increasing production given as reason for easing control—Little impact on housing seen

Fulfilling his year-end prediction that he weekly limit on non-residential construction enforced by the Civilian Production Administration would be lifted shortly, Maj. Gen. Philip B. Fleming, Temporary Controls Administrator, said last week that the ceiling had been raised to $50,000,000 weekly.

He added, however, that in spite of he higher limit, the volume of building in 1947 is not likely to exceed that of 1946.

Previously, the rate of non-residential construction had been held to $35,000,000 weekly. Shortly after his appointment as administrator of the Office of Temporary Controls, General Fleming told congressmen (*ENR* Dec. 26, 1946, vol. p. 845) that this limitation would be raised.

"This action is made necessary in part by increased costs of construction during 1946," General Fleming said in a statement, "and because, without the change, it would not be possible, in many instances to approve the added facilities required to furnish vital community needs in connection with new housing developments.

"It also results from the fact that CPA is altering two of its rules regarding approvals. The agency is notifying its field people to approve future applications for foundations and structural frames in areas where there is excessive unemployment in the heavy construction trades, where cement is in free supply, and provided that critical materials will not be used. CPA is also liberalizing treatment of applications for authorization to erect prefabricated steel structures—such as quonset huts—where no critical matematerials are used in erection."

In addition, the OTC chief said, non-residential farm applications which were formerly handled by the County Agricultural Boards, are now to be submitted to CPA, and provision has been made for this in the new quotas.

Lower level expected

Taking all these factors into account, General Fleming said that he believes that the level of non-residential building activity in 1947, even with this change, will actually be lower than that of 1946.

"Much of the commercial and industrial construction done in 1946 was started before VHP-1 was issued in March, 1946. Most of this work is now completed, and the backlog of construction carried forward into 1947 will be distinctly smaller than the backlog last March."

The statement said that OTC expects little or no impact on housing construction, in view of the improved building materials situation. There will be no other relaxation of the limitations on construction embodied in Veterans Housing Program 1 at this time, and authorizations must be obtained under the order just as previously.

See low ceiling "dangerous"

A $35 million average weekly ceiling was set during the period of severe materials shortages, when it was necessary to hold construction to a minimum.

"Although approvals have fluctuated above and below that figure from week to week, the average has been almost on the mark," Gen. Fleming added.

"This low rate of approval, if continued, would provide a dangerously low level of industrial and commercial construction in 1947, and might endanger the national economy. This in part explains why it is now necessary to raise the weekly goal back to approximately the level which prevailed at the end of August 1946.

"District construction committees and district construction managers will continue to see that only essential construction goes forward and that non-essential building is held back."

Army to start 32 VA hospitals by June

The Army's Corps of Engineers expects to have 32 Veterans Administration hospitals under contract for construction by June 30, 1947, the War Department said last week.

The group of new hospitals will include five structures for which the Veterans Administration supplied plans, and 27 for which the Corps of Engineers selected architect engineers.

VA to date has turned 63 hospitals over to the Army for construction, the announcement said. These constitute a large part of the $770,000,000 construction program, involving 74 hospitals and 23 major additions planned by the agency. An additional 16 hospitals have been authorized, but as yet no funds have been appropriated for building.

Two of the hospitals for which VA has furnished the design—in Providence, R. I. and Sioux Falls, S. D.—are now under construction. Of the other three, bids submitted on the proposed Grand Junction, Colo. hospitals were said to be too high and attempts are now being made to negotiate with the low bidders. Attempts to negotiate a contract for the Minot, N. D. hospital failed. But a contract for the $22,400,000 and 1,984-bed neuropsychiatric hospital, consisting of 32 concrete buildings, Peekskill, N. Y., was let last week to Merritt-Chapman & Scott, New York City, and F. J. Brotherton, Inc., Hackensack, N. J.

The only hospital handled exclusively by the Army Engineers on which a contract has been let is a 1,000-bed project at Buffalo (*ENR* Jan. 16, vol. p. 92).

Hospitals on which engineers expect to award construction contracts by June 30 include: a 100 bed general medical and surgical hospital at Albany, N. Y.; a 1000 bed hospital at Newark, N. J.

NEWS IN BRIEF

In telegraphic form, here are latest news developments on the engineering and construction front during the week.

Construction—Philadelphia Electric Co. has awarded to the Dravo Corp. a $2,462,000 contract for a steam electric plant at *Norristown, Pa.* . . . The *Philadelphia, Pa.,* board of education has plans for a $2,160,000 senior high school, and the Pennsylvania department of welfare will take bids Feb. 19 for a patients' building at the Philadelphia State Hospital, with cost set at $2,000,000. . . . The Gas and Electric Co. of *Baltimore, Md.,* proposes to spend over $45,000,000 in next three years for construction and equipment. . . . *Haverford Township, Pa.,* announces a $1,500,000 school expansion program. . . . University of Washington, *Seattle,* is receiving bids for construction of three buildings estimated to cost $4,112,000, while Gibbs & Hudson, Inc., of the same city has announced a $2,500,000 building program to add a 4-story garage, a commercial building, a medical clinic and an apartment hotel to the city's downtown district. . . . Diamond Alkali Co. will build a $2,000,000 research and administration center at *Mayfield Heights, Ohio.* . . . University of Michigan, *Ann Arbor,* has asked the state for an appropriation of $6,360,000 for present plant expansion and $6,850,000 for proposed new buildings. . . . A contract has been awarded to the Thompson Construction & Engineering Co., Toronto, Ont., for $4,000,000 dock construction at *Tormentine, N. B.,* for a terminal of the Northumberland Strait ferry service to Prince Edward Island.

Housing—Green Island Corp. will build a $1,000,000 development at *Green Island, N. J.* . . . Plans are ready for a $2,500,000 apartment development of 224 units on 30 acres south of Peachtree Creek at *Atlanta, Ga.* . . . FHA has approved a 629-unit rental project, Meadowbrook, at *Indianapolis, Ind.,* to cost $5,500,000. . . . At *Rockford, Ill.,* 326 dwelling units were started and 134 completed in 1946.

Highways—The $1,500,000 Spring Common Bridge at *Youngstown, Ohio,* the first urban project in Ohio to be approved under the federal highway act, may be put under contract this summer. . . . A highway official says that an additional appropriation of $9,000,000 will be needed to carry out the $10,000,000 program for resurfacing of *Ohio's* roads. . . . *Connecticut* received low bids of $1,179,470 from Merritt-Chapman & Scott for the substructure, and $2,015,185 from the American Bridge Co. for the superstructure of the Old Saybrook-Old Lyme bridge over the Connecticut River. . . . The Gulf Beach highway from *Panama City, Fla.* to *Phillips Inlet* will be widened six feet for 20 miles at a cost of $250,000. . . . *Alabama* has received low bids totaling $2,675,931, for 121 miles of road construction and improvements in 18 counties.

Sewers and water supply—If possible *St. Petersburg, Fla.,* will begin its projected $5,000,000 sewer extension this year. . . . *Philadelphia, Pa.,* has awarded contracts of $720,842 for sewers and disposal projects. . . . *Mt. Holly, N. J.,* has a $400,000 sewage disposal project. . . . *Conshohocken, Pa.,* has plans for a $400,000 treatment plant. . . . CPA has approved a $225,000 addition to the filtration plant at *Lexington, N. C.*

Propose high-level span over Boston harbor

Construction of a high-level bridge across Boston, Mass., harbor between the Logan International Airport, East Boston, and South Station. Boston, together with the modernization of the entire waterfront between the North and South Stations, are proposed in a bill filed with the present session of the Massachusetts legislature.

The project of making over the oldest section of Boston's waterfront would be in the hands of an expanded Boston Port Authority, which would be empowered to raise $75,000,000 in private capital.

Also proposed is the widening of Atlantic Avenue, and the construction of a high-level 6-lane roadway over the avenue and the Boston & Albany Railroad yards to a point near the Cottage Farm Bridge at Commonwealth Avenue. Another spur to the overhead roadway would run over the New Haven Railroad bed to Old Colony Boulevard and Dorchester Avenue; and a third over the Midland Division of the New Haven to the Mount Bowdoin area.

Another bridge, which would carry 14 lanes of traffic on two levels would extend from Kendall Square, Cambridge, over the Charles River.

Begin $3 million supersonic tunnel

Construction of a $3,000,000 supersonic wind tunnel for research in aerodynamics of missile design was started recently on the grounds of the California Institute of Technology.

Financed by the U. S. Army Ordnance Department, the tunnel will be constructed by the Corps of Engineers under the general supervision of the Cal Tech Jet Propulsion Laboratory, at the mouth of Arroyo Seco Canyon. It will be used for study of air speeds up to 3000 miles per hour.

Engineers said that the new tunnel will take about 18 months to complete and it will be housed in a building 70 ft. by 150 ft. The rectangular tunnel itself will be nearly as long as the building, about 8 ft. wide at the ends and narrowing to a 2 ft. passage in the center, where the models for testing are to be hung and highest air speeds attained.

More than four times the speed of sound is expected to be reached. The plant will be powered with a system of large centrifugal air compressors operated by electric motors. Only three other tunnels now in existence are capable of attaining such speeds. These are: The National Advisory Committee for Aeronautics laboratory at Cleveland, the Army's Aberdeen, Md., proving grounds; and the Navy's test station at White Oak, Md., which is now under construction.

Commenting on the new structure, Allen E. Puckett, engineer supervising design and construction of the tunnel and designer of the army's supersonic tunnel at Aberdeen, said that the new tool will have greater flexibility as to use and purpose than other existing tunnels. Rockets, guided missiles and jet-propelled airplanes will be tested.

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Home construction cost set at $7,400 in industrial areas by labor survey

Bureau of Labor Statistics studies cost to contractors for labor and materials, exclusive of land, development expenditures

Cost of actual construction for priately-financed one-family housing in 8 scattered industrial areas averages 7,400 per unit, a recently completed urvey by the Bureau of Labor Statistics f the U. S. Department of Labor has evealed.

The study also showed that for 15 on-industrial areas, lower priced housng is being built for an average contruction cost of about $5,900.

The survey showed that about eight onths will be required for most of the ousing to be completed.

The data obtained by the study perain to contractors' costs for labor and aterials, and are exclusive of land and evelopment expenditures such as installation of sewers and water lines to the ousing sites. The data were secured by pecially trained personnel of BLS operating out of the agency's eight reional offices. In any given area surveyed, all projects of five or more dwellng units were included, and a scientific ampling procedure was employed for btaining construction costs for smaller rojects.

In assembling a table of results, only rojects begun in October or November ere included, and data for each nonndustrial area include figures for the ntire county of which the city is a part.

Lowest cost in Texas

A study of the table prepared by LS reveals that for one-family structures, the lowest cost listed is $2,800 er dwelling for 18 units under contruction in Wichita County, Texas. The ext lowest figure is $3,500 for 64 units or Chatham County, Ga.

The greatest construction cost listed or one-family structures is $10,300 for 03 homes in Westchester County, N. Y., ollowed by $9,900 per unit for New ork City proper, where 347 units were urveyed. Next highest is the figure of 9,500 per unit for the Syracuse, N. Y. rea, and work in Cleveland, Ohio is early as high, construction cost for 36 units in that area being listed at 9,000.

It is to be noted that the data just eleased supplements a study made by LS in October (*ENR* Sept. 26, 1946, ol. p. 405). For the areas listed in oth reports, the figures in the latest reorts are generally a few hundred dollrs higher. BLS statisticians said that his rise should not necessarily be interpreted as indicating a higher construction cost, as it may also reflect the building of structures of a higher standard.

In releasing the figures, BLS reported that the average construction time for the one-family dwellings in the areas listed is expected to be about six months from breaking ground until the units are ready for occupancy. It is expected that about one-fourth of the one-family dwellings reported will be completed within three months after start of work, about 50 percent in five months, and 80 percent in eight months.

◆

Plan new sub-station for British Columbia R. R.

About $1,000,000 will be spent by the British Columbia Electric Railway Co. on the development of its new sub-station in Burnaby, B. C., according to a recent announcement. The new substation will terminate the transmission line from the company's new Bridge River power development.

Work on the reconstruction and expansion of the present station will start late this year and will be continued until about 1950.

"CC" priorities clarified by Housing Expediter

Producers of critical materials or equipment needed for the Veterans Emergency Housing Program can still receive special assistance through "CC" priorities, Housing Expediter Frank R. Creedon, has announced.

In response to many inquiries regarding the amendment by Civilian Production Administration of its Priority Regulation 28, (*ENR* Jan. 16 vol. p. 82) Mr. Creedon said:

"We want to correct any misunderstanding that all priority assistance for housing under this regulation has been dropped. This is not correct. CC ratings will be issued where material or equipment is required to maintain or increase the production of a building material or product which is critically needed for the Veterans Emergency Housing Program.

"It should be emphasized, however, that no priority tools which can be used to increase production will be abandoned before warranted."

CC ratings already issued continue to be valid, the Housing Expediter asserted. The amended regulation specifically states that the validity of outstanding CC ratings is unaffected and that "All orders bearing such CC ratings as well as those with CC ratings assigned under this amended regulation must be accepted and filled."

Applications for such ratings should be made on Form CPA-541A and sent to Civilian Production Administration, Washington 25, D. C.

PLATFORM 1
WESTBOUND

Wide-World photo

London Adds Subway Lines—*The new $17,000,000 East London subway extension was opened to traffic recently, as a part of extensive work to improve communications in the old city. Workmen at the Bethnal Green station (above) rush finishing touches as a test train runs over the tracks.*

DEVELOPMENTS BEYOND U. S. BORDERS

Digested from reports by Engineering News-Record correspondents and the McGraw-Hill World News Bureau

Australia plans biggest earth dam for irrigation—Mexico, Portugal to expand power facilities—Saudi Arabia reveals $50 million reconstruction program—China to rebuild rail lines

Australia—While Australia's national capital at Canberra is taking shape under the master plan prepared by the late Walter Burley Griffin of Chicago, another American construction expert is assisting in the planning of an ambitious dam-building project that will give the commonwealth one of the world's largest earth dams.

The project involves the enlargement of Eildon Weir, in Victoria State, from a storage capacity of 306,000 ac.ft. to 2,350,000 ac.ft. Increased storage will become possible by bringing in new catchment areas. John I. Savage, former chief engineer of the U. S. Bureau of Reclamation, is assisting in the planning.

The existing dam at Eildon took 20 years to build—from 1915 to 1935. It stands 140 ft. high and has a length of 3,094 ft., measured along the curved centerline. It is a rock-fill structure with central concrete core wall and a clay core on the upstream side. The rock fill is placed on clay overlying gravel and sedimentary bedrock, and mass concrete was used for the spillway at the west end of the dam.

Troublesome subsidence developed before construction was completed, due to the fact that the dam was built on the clay base.

While its principal purpose was irrigation, the reservoir was used to feed a small power plant of 15,000 kw. generating capacity through a small, short penstock.

The new dam will be of earth and rock fill with a relatively thin impervious central zone. Its centerline will be about 800 ft. downstream of the center of the existing dam, to take advantage of bedrock at that location. The new dam is planned for a height of 250 ft. and a length of 3,000 ft. It will require about 11,000,000 cu.yd. of earth and rock for fill.

Stability of the present dam, which will be completely submerged after completion of the new structure, will be maintained by progressive excavation and timing of construction operations with the low-water season.

Concrete and steel lined pressure tunnel construction has been recommended by Mr. Savage for the outlet and power penstocks. The spillway will be through a side channel, and the outlets and penstocks are to be built through rock at the side of the channel.

Provision has been made in the plan for installation of about 60,000 kw. of power generating equipment, although the seasonal nature of the demand for irrigation water conflicts with the needs of the power scheme.

Power . . . .

Mexico—The Ministry of Hydraulic Resources will receive bids until April 11 for construction of the Alvaro Obregon Dam, at Boquilla de Oviocho on the Yaqui River in Sonora State, which will be Mexico's largest dam. Bidders must demonstrate that they have the necessary equipment, or means to acquire it, so that the dam can be satisfactorily completed within 54 months from the time the contract is awarded. Bids will be received at the office of the ministry at Balderas No. 94, Mexico City, D.F.

Photo by Acme

***New "Commons"**—The legislative calm of London's Houses of Parliament is being disturbed these days as workmen assemble the steel skeleton for a new House of Commons. The new structure, replacing one destroyed in an air-raid in 1940, is being built on the old foundations and its architecture will blend with the existing buildings.*

Construction of the dam was ordered by Presidential decree issued two years ago, but lack of funds for the purpose delayed a call for bids until the present time.

Adolfo Orive Alba, secretary of the ministry, also announced that bids are being asked for construction of Santa Theresa Dam on the Altar River, in Sonora State. These tenders will be received until March 14.

Meanwhile, a Mexican-American commission of engineers has started studies of means of providing more hydro-electric power to remedy what the government has called "a grave problem" of lack of sufficient electric power. The commission is headed by Oscar R. Enriquez, director general of electricity for the Ministry of National Economy, and includes among its members C. J. Cisler, chief engineer, the Detroit (Mich.) Edison Co.; Charles Collier, vice-president of the Georgia Power Co., and others.

It is expected to report a complete program for development of hydro resources on a national scale.

Portugal—Seeking to remedy a condition that has made Portugal one of the more backward countries in Europe in the production of electricity, and to reduce the nation's dependence on imported coal supplies, the Portugese government recently signed contracts with two British organizations to supply $4,500,000 worth of additional generating equipment.

Most of the equipment is to be installed at the plant of the Hidroelectrica do Zezere, on the Zezere River, about 100 miles northwest of Lisbon. This plant is expected to produce about 200,000 hp. yearly when completed.

Other projects under consideration include the development of the Douro River which forms the international boundary between Portugal and Spain for some distance, but development of which would require a two-country agreement before work could start.

Transport . . . .

China—Part of the work on a railway line that will connect Canton with Chungking is expected to be under way in the spring, following completion of surveys on the section between Samshui —20 miles west of Canton—and Liuchow, in the heart of Kwangsi Province.

Only work that will be done during

47 is preparation of the roadbed. ils, ties and bridging materials are t available for completion of any of e sections which from Liuchow would n over prewar lines to Tuyun, and n almost straight north into echwan Province.

Under China's five-year plan, the ungking-Canton line is scheduled completion at the end of the fifth ar. However, the plan itself will be me time in getting under way—per- ps not until 1950, observers said. eanwhile, the provinces and the Min- try of Communications will do what ey can on the job.

Meanwhile, much emphasis is being aced on the rehabilitation of **China's** ewar rail lines, which are now in ry poor condition. Aided by the nited Nations and the China National elief and Rehabilitation Administra- on, it is hoped that the Hankow-Can- n Railroad can be completely repaired is year. This work will include re- lacing temporary wooden bridges with ritish military bridge units.

econstruction . . . .

Saudi Arabia—Lief J. Sverdrup, St. ouis, Mo., engineer, is expected to ar- ive here soon for conferences with King bn Saud on a $50,000,000 construction rogram planned for the modernization f the country.

Mecca—holy city of the Moslems— nd other ancient cities along the Red ea are to be provided with electricity nd new water supply systems, and the onstruction program will also include 300-mile railroad line from Riyadh to he Persian Gulf, a pier at Jidda, and modern hospital at Jidda and Riyadh. dditionally, recommendations will be ade for sewer systems for several cities —none of which now has such facili- ies available.

Mr. Sverdrup's consulting engineer- ng firm of Sverdrup and Parcel, to- ether with the Bechtel Corp. of San rancisco and Morrison-Knudsen of oise, Idaho, have formed a new company—known as Bechtel-Morrison-Sverdrup—to plan and execute the rabian construction program. Some f the preliminary work, such as surveying for roads etc., and partly in con- ection with the oil development work n Arabia, is reported already to be nderway.

Greece—John M. Kokkins, of the ew York City architectural firm of okkins and Lyras, is now in Greece nvestigating sites for the first five of ome 40 health centers to be built there y the Greek War Relief Association.

The construction program is based on $12,000,000 fund-raising program now eing carried out by the association.

Ports and Harbors . . . .

Puerto Rico—The Island Legislature has passed a bill appropriating $275,000 for Department of Interior expenses for plans and specifications for the development of the Martin Pena Channel in San Juan, and the development of a free zone or free port along the banks of the channel. A recent estimate of total cost of the channel and port work placed its value at about $16,000,000, including dredging and construction of service roads, streets and bridges.

New Guinea—The Nederlandsche Nieuw Guinee Petroleum Maatschappij company recently announced the signing of an agreement with the F. H. McGraw and Co., Hartford, Conn., for construction of two piers and about 90 miles of roads in the dense jungle country of Western New Guinea, near Morotai. The roads and piers will give access to new oil fields and to some that were in operation before the war but were destroyed either by the Dutch or by Japanese forces.

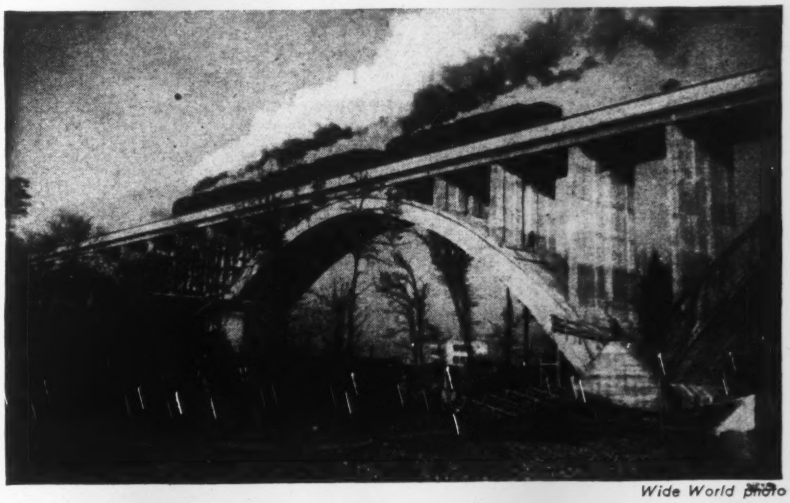
Scotland—Scottish municipal authorities are considering a joint appeal to the government for construction of a $40,000,000 graving dock on the Clyde River—a project for which three site surveys have already been made.

Machinery and Equipment .

Netherlands—American subsidiaries of the Billiton Co. disclosed recently that the company has signed contracts for construction of a total of eight dredges, to cost about $2,000,000 each, for use in Netherlands East Indies tin production.

The first of the new dredges, designed by Bucyrus-Erie Co. of South Milwaukee, Wis., and built by the Tampa (Fla.) Shipbuilding Co., was launched at Tampa recently. It has a hull 246 ft. long and 76 ft. wide, and is said to be able to excavate tin-bearing sand and gravel to a maximum depth of 100 ft. below water level.

India—A special representative of the Sind Province government returned recently from a six-month tour of the United States, during which he placed orders for more than $6,000,000 worth of machinery and equipment to be used in construction of the Lower Sind Dam (*ENR* Oct. 2, 1946 vol.p.547). Deliveries are expected to start late this year.



Wide World photo

***New, Not Rebuilt**—Among France's many hundred restored railroad bridges, this one at Nogent-sur-Marne, ten miles east of Paris, is notable as an entirely new structure, whereas the majority of the war-damaged bridges have merely been patched and rebuilt. The four original 165-ft. masonry arches of the Nogent bridge having been reduced to unusable rubble by demolition charges, the French National Railways, therefore, had no alternative but to replace them. The imposing double-track structure of three concrete arch spans of 260, 230 and 225 ft. shown above was the result. Both the arch barrel and the deck are of cellular construction and divided by a longitudinal joint so that the two halves function independently. The barrel is 11⅓ ft. deep at the springline and 7 ft. at the crown. The bridge was constructed with the aid of a 950-ft. span cableway, and tubular steel scaffolding was used for centering under the two shorter arches.*

DEVELOPMENTS BEYOND U.S. BORDERS

(*Continued from page* 5)

Mexico rushes work on vital irrigation scheme

Rushing to complete a major irrigation project that will make crop-producing farms of some 100,000 acres of dry-as-dust Mexican desert in the Valsequillo Valley, (*ENR* Aug. 8, 1946, vol. p. 158) U. S. construction equipment is being utilized on a 24-hour-per-day basis.

The project, located in the 100-mi. valley southwest of Puebla, is being developed in three major sections: a 260-ft. high dam across the bed of the Atoyac River; a seven-mile tunnel; and a 70-mi. canal system.

Spillway nearing completion

At the upper end of the valley, where the dam is nearing completion, finishing touches are being put on the spillway. Within a few miles of the spillway, the canal must cross a range of high hills, and for about seven miles the water must pass through the tunnel mentioned above. From the downstream end of the tunnel, the water enters an open canal again for about five miles, and then is carried by siphon across a deep gorge and up a hill on the other side (see cover picture of this issue).

The project is being developed by the Mexican National Irrigation Commission. Contractors on siphon and canal are Constructora Alpha, Mexican contracting firm. The tunnel was built by Constructora Rosoff, S.A.

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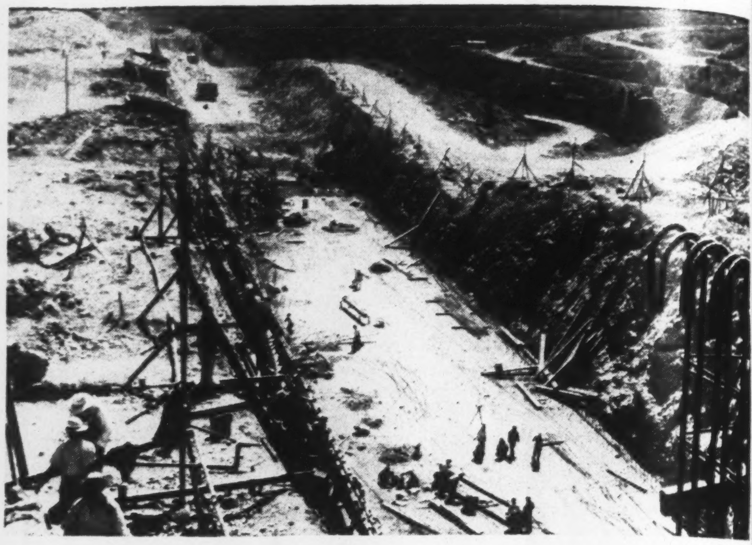

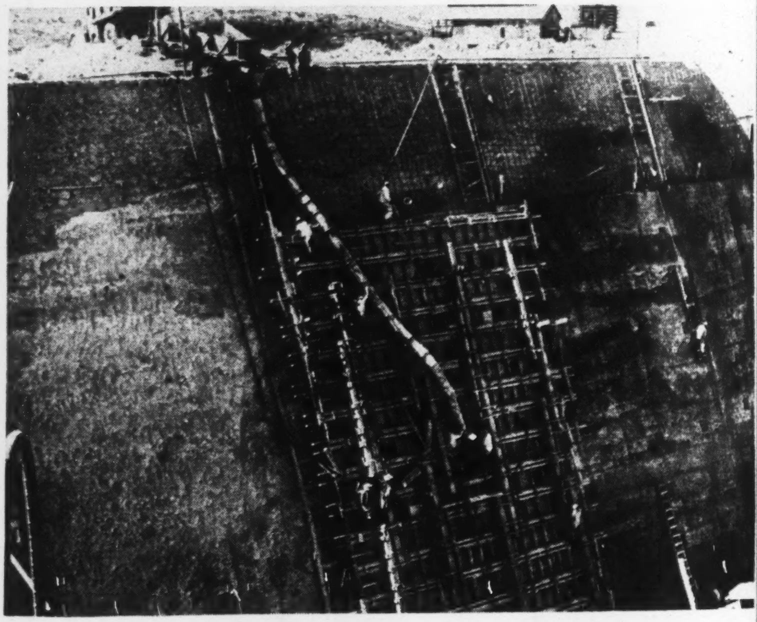

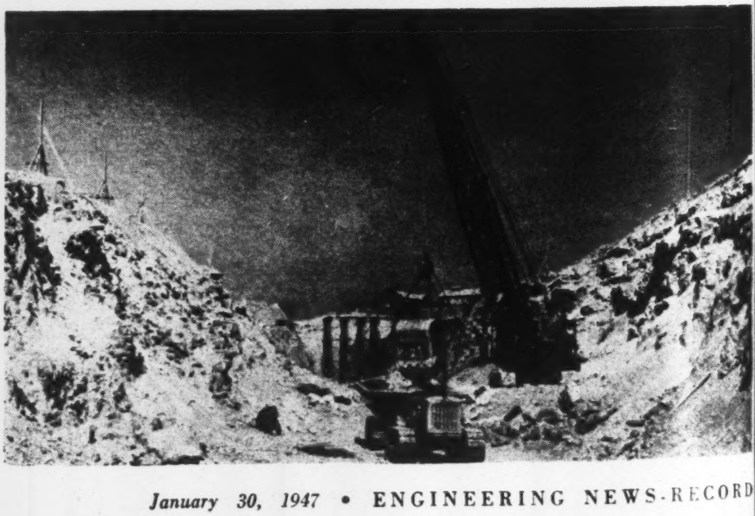

***Mexican Irrigation**—Looking down the canal of the Valsequillo project, top view shows work in progress on concreting canal sidewalls. Center photo shows workers putting finished surface on the spillway at the main dam of the project, using a travelling form fed from the top of the cut. At bottom, tractor and dump cart remove rock from spillway site. Seventy miles of canal, a seven-mile tunnel, and construction of the Valsequillo Dam itself are involved in the work. A 40-mile lake will be formed, and its water will be used to irrigate some 100,000 acres of desert lands transforming the hitherto barren valley into a productive agricultural area.*

All photos by Caterpillar Tractor Co.

Engineer lack blocks Canadian works

A shortage in the engineering manpower necessary for complete planning of eferrable public works is holding down the amount of such works now being repared by Canadian provincial governments, members of the Canadian onstruction Association were told during their recent 29th annual convention t Niagara Falls, Ont.

The more than 400 delegates reected Albert Deschamps, Montreal eneral contractor, as president, and llan C. Ross, Ottawa, as vice-president.

In his capacity as chairman of the ommittee on new developments, J. B. tirling of Montreal told delegates that anadian provincial governments to ate had prepared plans for about $382,00,000 of deferrable work. He said at, in reply to a questionnaire sent t by the association, two provinces eported they had done no planning for ch projects, and two others had deayed work pending clarification of nancial arrangements.

The maximum number of engineers nd skilled technical workers who ould be made available for planning uch works, Mr. Stirling said, is not ore than 2,000. He added that at east three times that number are necesary for the planning that should be in rogress at this time.

Suggest selection board

Amplifying Mr. Stirling's report, Robrt Drummond of Toronto, representing he association's materials committee, aid that the organization had suggested o the Dominion government that a fivean board—representing the construcion and manufacturing industries, the ngineering and architectural profesions, and labor—should be set up by he government to determine which contruction projects could best be deferred t present.

In reply, W. E. Uren, co-ordinator of uilding materials in the Dominion Deartment of Reconstruction and Suply, pointed out that such a board could ot be effective, since the issuance of onstruction permits is now a responibility of the municipal governmental nits and not a matter of central govrnment control—although such central ontrol was exercised during the war.

Seaway report

R. L. Hearn, chief engineer of design nd construction for the Hydro Electric Power Commission of Ontario, read a engthy paper on construction aspects of he proposed St. Lawrence Deep Waterway, on behalf of T. H. Hogg, commision chairman, who was unable to atend.

Mr. Hearn said that an average of 2,500 to 3,000 men would be required for six years to complete the Canadian part of the construction involved. He added that present estimates contemplate excavation of 3,821,000 cu.yd. of dry earth; 225,000 cu.yd. of rock and placing of 1,918,000 cu.yd. of concrete. Of these quantities, Canada will be responsible for 11 to 15 percent of the excavation, 35 percent of the concrete work, 84 percent of all railroad relocation work, and 95 percent of the work on rehabilitating existing towns.

Building apprentices continue to increase

Despite a decrease in the volume of new construction, the number of apprentices in the building trades continued to increase in December, according to the Department of Labor.

Reports from 3,759 contractors throughout the country listed 89,320 apprentices at the end of December, an increase of 1.5 percent over the cumulative November total. Breakdown of the apprentices listed in the December report, by crafts, follows:

Woodworking, 34,431; electrical, 13,672; pipe trades, 12,761; trowel trades, 10,921; painting, 7,148; sheet metal, 6,244, and other trades, 4,143.

PERSPECTIVE . . . .

Portal-to-Portal Pay in Construction

Lack of enthusiasm by A.F.L. leaders for the portal-to-portal suits being filed by the C.I.O. does not mean that construction contractors dealing with the A.F.L. may not some day have to face this issue.

It does indicate, however, that A.F.L. unions will not be likely to ask, or seek in court, retroactive payments for time spent on the contractor's property or under his control while traveling to or getting ready for a job.

Some contracts in the construction industry already take into consideration time spent sharpening tools, changing clothes, cleaning up, or being transported from job to job. Some A.F.L. unions are likely to raise the question in new contract negotiations.

The suggestion that they do so is clear in the policy announced by A.F.L. President William Green and John P. Frey, president of the metal trades department, which includes many unions in the building trades. Simply stated, A.F.L. policy is that affiliated unions should live up to their existing contracts—any question as to how much of the worker's time should be paid for is a matter for collective bargaining, not the courts.

Aware of the impact of the C.I.O. suits on industry, now amounting to around $5,000,000,000 in retroactive payments, Congress has made this problem its first order of business. Proposals are under consideration in both houses to relieve employers of any retroactive liability and also of any future compulsion to pay for travel time except where it is agreed to or the practice in the industry.

Receiving greatest support is the bill by Representative John W. Gwynne (R., Ia.) which would limit any suits for back wages of any kind to one year and would outlaw suits for wages which were not paid by custom or agreement. Because it does not open up the wage-hour law for amendments, the Gwynne Bill is considered by many observers to be preferable to those of Sen. Alexander Wiley (R., Wis.) and Sen. Homer E. Capehart (R. Ind.) on the Senate side. The Wiley and Capehart bills would amend the wage-hour law by including in the 40-hour week only time spent in productive labor.

The portal-to-portal pay issue is pertinent, under the wage-hour law, only when the employer is covered by the law and the time in question raises the work week above 40 hours. In the Mt. Clemens Pottery case, the Supreme Court said further that travel and "get-ready" time may be disregarded if it is negligible.

The metal trades department, representing 15 unions, was the first to take a position against the wage suits. A resolution was approved by the heads of the 15 unions as well as by the leaders of three cooperating unions, the carpenters, painters and teamsters. Members of the metal trades department include the electricians, operating engineers, laborers, plumbers, and iron workers.

HIGHLIGHTS OF MUNICIPAL DEVELOPMENTS

Summarizing current activities in city engineering and construction throughout the country.

St. Louis, Milwaukee, New Orleans and Toledo reveal long-range rehabilitation plans—Buffalo to spend $3 million for improvements—Baltimore announces street, sewer program—Louisville, Ky., and Trenton, N. J., consider expressway programs

Seeking to alleviate problems of housing, business-area construction and traffic congestion, accentuated by wartime controls over construction, cities in the United States last week continued to announce the adoption of "master plans" looking toward coordinated solutions of their troubles.

Most of the plans contemplated are long-range—some for 25 years or more—during which congested downtown areas would be cleared and rebuilt. In addition planners recommended such relatively new expedients as underground parging garages.

At St. Louis, Mo., the City Plan Commission submitted to officials a comprehensive plan for a 25-year period, recommending:

(1) Complete demolition of all unfit structures on a 5 sq. mi. area generally surrounding the city's downtown business district, and reconstruction of the area as modern residential districts to halt an exodus of population; (2) rehabilitation of 17 additional square miles of "blighted" area flanking the first section; (3) complete rewriting of the city's zoning ordinances especially to provide for single family zoning not now covered by the law; (4) enactment of a minimum standards housing ordinance; (5) construction of a new major street plan, comprising 300 miles, to include two new major express highways and both interstate and urban distributing routes traversing the city in all directions.

In addition a broad program of subsurface, surface, and elevated garages was recommended. Also included were extension of public recreation facilities, the division of the city into 82 residential districts or neighborhoods, to form units through which local improvements could be pressed to completion, and the adoption of an area-wide system of 35 airports in the immediate region of the city.

$72 million for Milwaukee

At Milwaukee, Wis., the Milwaukee Board of Land Commissioners completed ten months of intensive work in the preparation of a master plan calling for the expenditure of about $72,000,000. Characterized as "neither visionary nor revolutionary", the plan calls for construction of a civic center; renovation of the interior of the city hall and construction of a city hall annex and parking area; moving of the Milwaukee railroad station; construction of landscaped parking areas near all public buildings; the designation of a major street system for the city with a program of street widenings and elimination of bottlenecks at intersections; a program of beautification of river banks, lake front, and public housing, and passage by the common council of a new and simplified zoning ordinance.

New Orleans plans

In New Orleans, La., Mayor deLesseps S. Morrison made public plans for a $28,000,000 improvement program and asked public support for a bond issue to finance the plan.

The money would be spent, Mayor Morrison said, approximately as follows: $10,000,000 for the city's contribution towards a proposed grade separation and railroad passenger terminal; $8,000,000 for improvement and beautification of city streets, including about 25 miles of paving and 375 miles of blacktopping; and remaining funds would be spent on construction of a public building area, including a new city hall, and municipal center, in a semi-slum area of the city.

Toledo to clear slums

Toledo, Ohio's city plan commission disclosed that preparations of detailed plans for developing the city's blighted residential areas can begin whenever funds for the work are made available.

Commissioners said that data gathered over a period of many years are now available in chart and map form to form the basis for reconstructing areas immediately surrounding the city's downtown district—extending in a jagged semicircle for a mile south, west, and north of the center. The group urged that the city councilmen devote attention to the fiscal, legal and administrative implications of proposed legislation now before the state legislature that would enable municipalities to begin civic improvement programs. The group pointed out that the city council will be confronted eventually with four problems: the creation or selection of an administrative organization for rehabilitation; the finding of sources of revenue for redevelopment; the provision of adequate housing for families displaced in the process, and continuing support for planning.

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Buffalo considers projects

Mayor Bernard J. Dowd of Buffalo, N. Y. in his annual message to the common council outlined a program of public improvements for 1947 calling for expenditure of at least $3,150,000. He also described an improvement program for the municipal airport, to be carried through with federal aid.

Most important project on the city's program of capital improvements, Mayor Dowd said, is an incinerator on Squaw Island in Niagara River. Plans for this incinerator will be completed and ready for bids in a few weeks, the mayor said, explaining that the city's present 500-ton incinerator had been operated beyond capacity during 1946 but that facilities still "are woefully inadequate."

Mayor Dowd also reported that the city has submitted to national authorities a supplementary program for runway construction at the municipal airport at an estimated cost of $1,724,798. Other projects recommended by the airport advisory board at an estimated cost of $501,650 have been submitted to the Civil Aeronautics Administration.

◆

Dallas sets garbage tax

Mayor Woodall Rogers of Dallas, Tex., supported by city councilmen, has announced that the city would not repeal its recently assessed garbage collection tax, which amounts to 90c a month for every family and $1 and $2 per can monthly for business concerns. Less than 1 percent of Dallas residents have refused to pay the tax.

Opposition to the tax was increased when it was ruled that landlords must pay the garbage tax if they pay their renters' water bills, as the tax is billed to household water users on the monthly water bills. This caused a storm f protest from apartment house and plex owners. As a result, the counl relieved apartment house owners nd all other landlords who pay their nants' water bills by making them e city's agent to collect the garbage x from renters, instead of sending e garbage tax bill to the landlords n their city water bills.

◆

Expressways planned

Federal, state and city officials have greed to start work on a $6,000,000, 2-mile, 4-lane superhighway to lead affic into Louisville, Ky., from the st.

The first section has been located efinitely and construction is expected o start in June. The exact route for he rest of the road will be determined ter. The immediate construction will ost about $1,700,000 and will be paid or entirely by federal and state funds.

Costs of the initial rights of way are stimate at $534,000, to be paid for ne-third each by the federal and state overnments and the city.

Freeway for Trenton, N. J.

Indications are good that the New ersey legislature will approve a $10,00,000 freeway through Trenton to relieve traffic congestion and to open the ain traffic bottleneck between New York and Philadelphia, according to State Highway Commissioner Spencer Miller, Jr.

Highway department plans call for hree traffic circles to be completed ithin the city this year at a cost of 1,500,000.

The entire project, to be completed n five years, will provide a roadway ree of intersections and traffic lights rom the Brunswick Pike to the lower Delaware River Bridge. An old canal, illed in 10 years ago, will be used as ight of way through the main part of he city, and plans also call for a bridge ver the Pennsylvania Railroad tracks nd various ramps and approaches.

◆

Philadelphia OK's loan

An $11,000,000 loan ordinance to provide funds for civic improvements has been authorized by Mayor Bernard Samuel of Philadelphia, Pa. The loan, which will not require approval of the voters, provides for the following:

$2,000,000 for sub-surface garages, parking lots and other parking facilities to care for the present mid-city traffic problem; $3,000,000 for parks, playgrounds and recreation centers; $3,500,000 for street, road and bridge improvements; $1,000,000 for improvements at the Reed street and Holmesburg County Prisons; $1,000,000 for a new building program at the zoo; and $500,000 for repairs to the Municipal Stadium and the Philadelphia Commercial Museum, exhibition and convention halls.

The proposed expenditure of $3,500,000 for parks and recreation facilities raises to $7,500,000 the sum allocated in the last two years for this purpose. The allocation of $3,500,000 earmarked for roads, streets and bridges is the third such one and brings to $10,000,000 the amount authorized.

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East Boston's subway

A $7,981,000 subway extension of the East Boston, Mass., rapid transit system should be completed late in 1939, according to Mayor James M. Curley of Boston.

Construction could begin 30 days after approval of plans by the State Department of Public Utilities and the Boston Elevated Street Railway, the official said.

Work on the extension is expected to begin early in 1947, depending upon the flow of materials. The extension will run underground from Maverick Square, East Boston, to Logan Interstate National Airport. From the airport the route will be continued to terminate at Day Square.

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Airports for Twin Cities

The metropolitan airports commission of Minneapolis, Minn., has adopted a plan to extend Wold-Chamberlain airport to the westward. The proposals call for an estimated expenditure of approximately $7,000,000.

Baltimore plans works

Sewer and street construction programs involving the expenditure of $6,900,000 during the current year were announced recently by officials of Baltimore, Md.

The overall program includes $4,600,000 to be spent on rehabilitation of city streets under a loan authorization recently approved by voters. The street program will include: expenditure of $1,000,000 for reconstruction of wornout pavements; $2,500,000 for construction of new streets and needed bridges; $800,000 for new roadways to housing developments; $250,000 for reconstruction of private alleys to improve sanitary and storm water drainage conditions; and $100,000 as the city's contribution to building of suburban streets.

The city will make extensive use of soil stabilization in the preparation of pavement bases and subdrains.

The city's Bureau of Sewers said it will carry out a $2,300,000 construction program, and expected to let a contract soon for the first unit of this program—a $600,000 sludge dryer at the Black River plant.

Other items on the sewer program will include: a $1,000,000 storm sewer plant to be carried forward in conjunction with the street program; $250,000 for sanitary sewer extensions to new housing developments in outlying areas; completion of installation of 30 rotary distributors at the Black River plant to cost $650,000, and the construction of two covered sludge digester tanks, 100 ft. in diameter and 25 ft. deep.

Installation of the distributors at the Black River plant will convert the filters for high-rate operation from 3,000,000

Covered Bridge Work—*To protect workers and maintain even drying of concrete being poured for a new state highway bridge over the Salmon River at Malone, N. Y., contractors have built a canvas-and-wood shelter which is moved forward as the work progresses. The spiral steel reinforcement visible in the photo serves as a horizontal shear connection with the concrete, and is being welded to the top flange of steel girders that will carry the deck slab. Contractor on project is the John J. Harvey Co., of Utica, N. Y.*

FPC disallows private rights on Clark Hill Dam

Affirming its own stand on the matter, the Federal Power Commission last week dismissed the application of the Savannah River Electric Co., which sought approval of its 10-year-old application for construction of Clark Hill Dam, on the Savannah River five miles above Augusta, Ga.

Although the Army Engineers have already started preliminary work on the power and flood control structure, (even opening new bids on Jan. 17), the power company—an affiliate of the Georgia Power Co., last August asked the right to build the dam (*ENR* Aug. 29, 1946, vol.p.271) on the ground that it had received an FPC license for this purpose in 1928.

The FPC said that it had previously —in 1939 and 1944—recommended federal development of Clark Hill; that the Army Engineers, under Congressional order, were carrying the project forward; and that it would not entertain the application filed by Savannah River Electric Co.

The finding clears the project under the latest budget bureau ruling, permitting construction of flood control works for which funds have already been appropriated.

Meanwhile Army Engineers indicated that they would probably reject all bids received last week for construction of the dam, because the bids are above estimates. It is believed that the project will be broken into several categories to permit a larger number of contractors to bid on individual portions and to reduce costs and speed completion of the work.

Low bid of $17,424,000 for the project, received Jan. 17, was submitted by the Morrison-Knudson Co., Inc., Boise, Idaho. The bid, engineers said, was still 36 percent above the estimate prepared for it.

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Correction

The Commonwealth Club of California has called attention to an error in an article in the November 7, 1946 issue of *Engineering News-Record* (vol. p. 609) in which there were criticisms of a proposed state highway program.

Club officials said: "No action has been taken by the Commonwealth Club of California with reference to the report. The discussion reported was presented at one of the twenty specialized study groups which the club conducts, and the views which the article ascribed to the club were solely those of an invited guest."

Group backs Army's Osceola Dam plan

Taking a position directly opposed to that of Governor Phil Donelly of Missouri, and the Missouri Farmers Association (*ENR* Jan. 9, vol. p. 29), the Osage Basin Improvement Association announced that it was in favor of army development of the $57,000,000 Osceola Dam.

The dam would be situated on western Missouri's Osage River and would involve the inundation of 249,000 acres of land by water stored for flood control and power. In recent public statements, Governor Donelly and the farmers group expressed violent opposition to the work on the ground that construction of the dam would be far more costly than the benefits warrant.

In a statement released to Missouri and Kansas newspapers last week, the improvement association said that it believed that the Army engineers were the best qualified agency for construction of the dam and its appurtenant works and accused opponents of the project of losing sight of the question of flood control in a debate over which agency is to accomplish the work.

Claiming to represent some 7,000 members, the association—formed some eight months ago—refuted Governor Donelly's statements of damage to farm land and industrial users with the claim that much of the farm land to be flooded is held as pasturage and not as crop producing land and that many of the coal and sand and gravel deposits which would not be economical to operate in any event.

MAJOR MEETINGS

National Crushed Stone Association, annual meeting, Edgewater Beach Hotel, Chicago, Ill., Jan. 27-29.

Associated Equipment Distributors, 28th annual meeting, Edgewater Beach Hotel, Chicago, Ill., Feb. 13-15.

American Road Builders Association, annual convention, Palmer House, Chicago, Ill., Feb. 17-21.

American Concrete Pipe Association, annual national convention, Statler Hotel, St. Louis, Mo., Feb. 23-25.

American Concrete Institute, 43rd annual convention, Netherlands Plaza Hotel, Cincinnati, Ohio, Feb. 24-26.

National Council for Stream Improvement, annual meeting, Waldorf Astoria Hotel, New York, N. Y., Feb. 24-26.

American Society for Testing Materials. Committee Week, Benjamin Franklin Hotel, Philadelphia, Pa., Feb. 24-28.

Association of Highway Officials of the North Atlantic States, 23rd annual meeting, Hotel Traymore, Atlantic City, N. J., Feb. 26-28.

New hydrologic studies by Geological Survey

The Water Resources Branch of the Geological Survey, in cooperation with state and local agencies, is studying problems of broad hydrologic interest, to provide basic material for use by the public in water supply, highway and flood problems.

Included are compilations of basic stream flow data and research in floods, unit hydrographs, methods of extending stream-flow records, relations of rainfall, stream flow and ground-water levels, evaporation and soil moisture.

Investigations are now under way in New Jersey, Massachusetts, Virginia, Ohio, Illinois and in San Bernardino and Riverside Counties, California, in cooperation with the respective governmental agencies. Results of the investigations will be published in cooperative reports.

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Texas water board wins test of control right

The Third Court of Civil Appeals at Austin, Tex., ruled that the State Board of Water Engineers had the right to control how public waters upon which had been granted state diversion permits should be used.

The case arose when the Briscoe Irrigation Co., which has a permit to divert 75,000 ac.-ft. of water a year for irrigation purposes from the Brazos River in Fort Bend County, asked the board for permission to use the water they had previously been granted for irrigation purposes, for manufacturing, mining and municipal purposes instead.

The water board denied the irrigation company this permission, and the company took the case to court and received from the district court a declaratory judgment against the board. This gives the irrigation company, as the holder of a valid permit from the water board, the right to use the water granted under the permit in any way the company desired.

In its decision, the court ruled that when the water board granted a permit to divert water from Texas public waters for a certain purpose, the agency granted the permit—although owning a vested title to the permitted water—could not change the use of the water for which he permit had been granted. The court ruled that the State Board of Water Engineers still retained the right to control the use of such waters upon which had been granted state diversion permits wherever public interest is concerned.

Experts blame all parties—including public—for hotel fire disasters

National Fire Protection Association speakers cite responsibilities of builders, architects, inspectors—Point lessons

The responsibility of architects, builders, fire insurance companies and the representatives of the public for the shockingly large casualties in recent hotel fires, and lessons that might be learned from these catastrophes were pointed out at a recent one-day national conference sponsored at Philadelphia, Pa., by the National Fire Protection Association.

Attended by about 700 city officials, hotel operators and fire authorities, the conference was called to discuss causes of hotel fires and to consider preventive legislation. At the meeting, announcement was made that the drafting of a model law, containing fundamental requirements for safety from hotel fires is already under way.

Curtis W. Pierce, NFPA president and president of the Factory Insurance Association of New York, keynoted the meeting with the statement that there is no record of any sweeping fire with resultant loss of life in hotels, apartments or other places of assembly, "when erected and protected in accordance with modern building standards developed by experts."

Blames all concerned

Castigating all concerned—from general public (for indifference) to hotel operators (for failure to know and comply with requirements), James K. McElroy, NFPA fire protection engineer, pointed out that a single $50 door installation at the entrance to the stairway from the third floor of the Winecoff Hotel in Atlanta, Ga., would have prevented (if closed) the spread of fire in which 119 persons died Dec. 7.

This disaster, he said, was essentially the result of "overconfidence" in a type of structure for a great many years commonly described as "fireproof" by many engineers, and believed to be so by the public.

"The shock of the Winecoff disaster," Mr. McElroy said, "while greatest to the loved ones of the dead and injured and the hotel management, was no less a shock to architects and engineers who have designed, built and periodically inspected the Hotel Winecoff and other so-called 'fireproof' buildings. In this case there were clues to the impending disaster in the record of the Hotel La Salle fire in June, 1946, which also involved unprotected vertical openings, delayed detection of fire and delayed alarm to the fire department."

The deaths of the original owner and the architect of Hotel Winecoff make it impossible to learn whether or not the fire-insurance rating organization that had jurisdiction was consulted by the architect to determine, in advance of design and construction, the additional fire insurance costs to be charged throughout the life of the building because of the proposed lack of protection for the single unprotected vertical stairway opening.

There are four major lessons for architects and builders in this disaster, a concensus indicated: (1) It is dangerous to sacrifice life-safety features for economic considerations of space return and building costs. (2) Combustible trim and finish are sufficient fuel for a fire of the intensity required to burn through guest room doors, and open transoms encourage the spread of fire. (3) Active cooperation is required of the architect and builder on behalf of their clients with building departments, fire-prevention bureaus, insurance rating organizations and insurance-company fire-protection engineers. (4) Automatic protection, properly installed and maintained, for corridors and especially hazardous areas in a fire-resistive structure is sufficient to avoid delayed discovery of fire and to confine the fire to the place of origin.

"The public, in its indignation," Mr. McElroy declared, "overlooks the ignorance of most property owners of the simplest requirements for life safety, the resistance of many owners and managers to recommendations for the correction of fire hazards, the failure of many architects and builders to protect their clients' moral and legal obligations for the life safety of their customers without legal coercion, the pressure of politics on honest building and fire department officials. Also overlooked are the failure of fire and casualty insurance engineers to sell fire prevention and safety recommendations, the insurance salesman whose only service to clients is collection of premiums, the willingness of insurance companies to permit property owners to accept responsibility for hazardous conditions simply by payment of an insurance premium for the deficiency, and the lawyer who is wedded to the due-process clause of the Constitution of the United States."

John W. Strohn, state fire marshal of Iowa, said that the model code now being drafted will include provisions for a minimum of two safe exits, proper and prompt detection of fire, limitation of combustible trim and finish in hotels, and procedure for periodic inspection of hotel properties by state and local authorities.

***Site for Reservoir**—Preliminary work for construction of the $4,500,000 Baldwin's Hill Dam—largest single project in the Los Angeles, Calif., water supply expansion program—is now under way on the site overlooking the city. The entire project will include an inlet line from Hollywood Reservoir, an outlet pipeline to connect with existing lines, and an earth dam 155 ft. high, 650 ft. long, and 66 ft. wide at the base. The project will involve the moving of about 2,000,000 cu.yd. of earth, and will provide reserve water supplies.*

MEN AND JOBS

"Salud" is the good word from Jorge Triana, consulting engineer and professor of engineering at The University of Bogota, who attended the Inter-American sanitary engineering conference at Caracas, Venezuela as one of the delegates from Colombia.

Ten years ago Dan Boom (left) and Fred Bowlus supervised construction of the Los Angeles County Sanitation Districts' White's Point outfall (ENR March 11, 1937, vol. p. 369). With preliminary work starting on a new leg for the outfall, they have been called back to supervise the new job.

Meeting in conference at Springfield recently were these officers of the Illinois Water Plant Operators, left to right, Carl Duy, superintendent, water, Aurora, secretary; L. S. Doren, general manager, water works, Pekin, chairman; and Herman Garner, superintendent, water department, Benton, vice-chairman.

David D. Congleton of the U. S. Engineers has been assigned as head of the dam design section supervising the preparation of final design and contract drawing for dams in the Baltimore, Md., district. He is a civil engineer graduate of the University of Cincinnati, 1930, and was assistant resident engineer on the construction of the Cincinnati passenger station, 1930-1933. He joined the U. S. Engineers in 1934. During the war as a major he served three and a half years in England as area engineer on construction of hospitals, airports and camps.

W. C. Perkins, Omaha, has been appointed chief engineer of the Union Pacific Railroad Co. He is a native of Idaho and had been with its present employers since 1916. He is now succeeding B. H. Prater, who will fill a newly-created post of engineering consultant.

Leon Henry, of Rapid City, S. D., has been appointed county road engineer of Perkins County, S. D.

William H. Klein has been appointed assistant to the president of the Lawrence Portland Cement Co., New York City. In addition to his duties in that position he will continue his independent consulting practice.

W. Edwin Glossop, who for 28 years has been construction engineer for the Standard Oil Co. of Kentucky, until his retirement Jan. 1, has opened an office in the Starks Building, Louisville, where he will specialize as an architect and consultant for commercial and industrial projects. Before joining Standard Oil he was for some years a member of the architectural and engineering firm of Ward & Glossop and some years ago was inspector of buildings for Louisville.

H. W. Flemming, a native of Liverpool, N. S., and graduate of Dalhousie University, Halifax, has been named assistant chief engineer of the Canadian National Railway System at Montreal.

Gerald E. Brown, of Kenesaw, Neb., has been appointed county engineer of Adams County with headquarters at Hastings. A graduate of the University of Nebraska, he served in the armed forces in the Pacific.

Appointment of **D. C. Andrews** as a general superintendent of construction of the Turner Construction Co. has been announced by Admiral Ben Moreell, president. Mr. Andrews was graduated from McGill University, Montreal, in 1924, and joined Turner a year later. After training in various field positions he was made a superintendent in 1929 and has since played an important part in the company's construction activities.

Wardner G. Scott has been re-appointed Nebraska state engineer. He has held that office since 1942.

E. F. Barrett, formerly engineer of Wentworth County, Ont., has been named city engineer of North Bay, Ont.

Elston A. Lotz has been appointed city manager of Brunswick, Ga. During the war years he was a chief construction engineer for the United States Maritime Commission and formerly served with the Public Buildings Administration.

William E. Blaser has been appointed chief deputy county engineer at Cleveland, Ohio. Irving M. Baker is chief engineer.

Ingwald Edward Flaa, 70, has retired as hydraulic engineer of the San Francisco Water Department. Graduated from the University of California in 1909, Mr. Flaa went to work for the Spring Valley Water Co., then supplying water to San Francisco. When Spring Valley was purchased by the city in 1930 he stayed with the department. He was responsible for designing the modernization of Spring Valley facilities. Now in charge of San Francisco's hydraulic engineering is C. A. Lauenstein who will remain acting head until civil service examinations for the permanent position are given. Mr. Lauenstein has been with the department since 1924.

Karl A. Sinclair has been named chief engineer of the city and county of Honolulu, T. H., to succeed Joseph F. Kunesh. The new chief engineer is a native of Boston, Mass., a 1908 graduate of the University of Maine. He was maintenance engineer for Multnomah County, Ore., from 1921 to 1923, was with Warren Bros. Paving Co., Boston, until 1933 when he became associated with the public works administration. He was regional PWA director for Hawaii from 1935 to 1940. From 1940 until this year he was airport engineer with the territorial public works department. In his new capacity, Sinclair has charge of the public works program for the whole island of Cahu, which operates on a budget of about $2,000,000 a year.

Frank L. Dienst is at Guam as chief structural engineer with Robert & Co. Inc., Atlanta, Ga., which has an architect-engineer contract with the U. S. Army. Previously Mr. Dienst was structural engineer with Jones and Henry, Toledo, Ohio; structural and construction engineer with The Metcalfe, Hamilton, Kansas City Bridge companies on their work for the Army in Alaska; structural engineer with Giffels and Vallet, Inc., Detroit, in their Norfolk, Va., office on work for the Navy.

Herbert T. Barclay, former city manager of Mason City, Iowa, has been named assistant engineer in Iowa for the Civil Aeronautics Administration, with headquarters at Des Moines.

Helmer Hanson, Wheaton, Minn., who has been highway engineer for Traverse County for the past 28 years, has resigned.

Robert H. Doty, Champaign, Ill., has been appointed an engineering aid in the Illinois State Department of Public Works and Buildings.

Herbert E. Hudson, Jr., Champaign, Ill., has been named an engineer for the Illinois State Water Survey, affiliated with the University of Illinois.

George N. Williams of Toronto, Ont., has been named deputy minister of public works for Ontario and chief provincial architect. Mr. Williams succeeds the late R. A. McAllister.

New assistant district engineers for the New York State Department of Public Works district offices in Albany and Utica have been announced as follows: **Edward Stickney,** formerly of the Albany district office, was reassigned there to succeed Peter J. Lamb, of Troy, who has retired. At the same time **Col. John P. Larsen,** associate civil engineer at the Rochester district office, was given a provisional appointment as assistant district engineer at Utica to succeed Mr. Stickney. Until transferred to Utica on July 1, 1946, Mr. Stickney was assistant district engineer in Albany, the post to which he now returns.

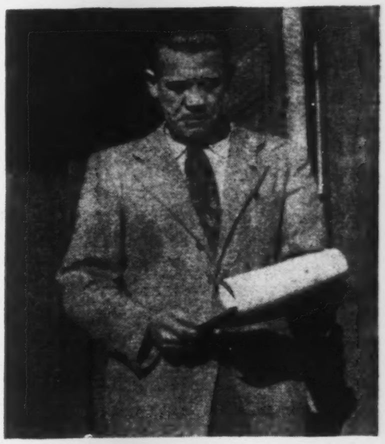
George H Burdorf, with the U. S. Engineers for 30 years, is in charge of the Cincinnati, Ohio, office of the Louisville, Ky., district.

W. D. Hatfield, superintendent, Decatur, Ill., sanitary district, became chairman of the City Planning Commission, Decatur, Jan. 2, to succeed J. C. Hostetler, chairman for the last five years.

Ralph L. Wolf, Columbus, veteran of both world wars, has been appointed executive secretary of the Ohio State Highway Department.

E. C. Bashey has been appointed chief assistant engineer, new construction, at Tacoma, Wash., by Jack Roberts, commissioner of public works. He succeeds **Ray Green,** recently assigned to the planning commission.

The new Okanogan County engineer at Okanogan, Wash., is **Mike Davidson,** who replaces **Howard Taylor.** Taylor, who had held the position a year, resigned to enter business.



Under the supervision of City Manager S. L. Grant, who is also superintendent of the water department, Winchester, Va., recently installed its first parking meters and placed in service a new transit system.

A North Carolina State Highway Department program calling for emphasis on secondary roads is reason for meeting of H. B. Morris (left), district engineer at Winston-Salem, and T. V. Fahnestock, bituminous engineer for the state.

The new Amphibian Engineer Association (ENR Dec. 12, 1946 vol. p. 773) has brought together the four men pictured above. Maj. Gen. Daniel M. Noce (second from left), chief of the Civil Affairs Division, Office of the Chief of Staff, War Department, is national "beachmaster," or president. Others are (left to right) Brig. Gen. D. A. D. Ogden, Engineer Special Brigade, Fort Ord, Calif.; Brig. Gen. William M. Hoge, Ft. Belvoir, Va., and Brig. Gen. Arthur G. Trudeau, chief of the War Manpower Board and "shore commander," or vice president, of the new group.

California utility to spend $300 million

A $300,000,000 five-year construction program in California has been announced in San Francisco by the Pacific Gas & Electric Co.

Included is a $26,000,000 hydroelectric plant of 169,000 hp. capacity at Storrie on the North Fork of the Feather River and $21,500,000 powerhouse of 101,000 hp. at Cresta. These and a new electric-operated steam generating unit in the San Joaquin valley will start in 1948 with completion planned for 1951.

Soon to get under construction are two plants on the Mokelumne River, a new steam plant at Bakersfield and the expansion of a steam plant in San Francisco.

The company's statement made it plain that their expansion plans take into account the absorption of all power which may be produced at the Shasta and Keswick dams in the Bureau of Reclamation's Central Valley Project.

The program will add about 1,000,000 hp. to PG&E's power capacity.

Canal Zone building named after Rousseau

During the war a Naval hospital was constructed at Balboa, C. Z. Now surplus, it is being converted into 72 apartments to accommodate enlisted men and civilian employees of the Navy. Rear Admiral John F. Shafroth, Commandant of the Fifteenth Naval District, has named this development "Rousseau" in honor of Rear Admiral Harry H. Rousseau, (CEC) USN, former member of the Isthmian Canal Commission and ex-chief of the Bureau of Yards and Docks.

Admiral Rousseau entered the Civil Engineer Corps of the U. S. Navy in 1900, and in 1907, became Chief of the Bureau of Yards and Docks by appointment of President Theodore Roosevelt. Later he was selected to be a member of the commission which finally constructed the Panama Canal. Rear Admiral Rousseau reverted to his permanent rank of lieutenant commander and spent the next eight years on the canal with Colonel Goethals, Gorgas, Gaillard and others.

In 1915, by Act of Congress, Commander Rousseau was made a rear admiral at the same time that Colonel Goethals and the others were made major generals. Admiral Rousseau's part in the construction of the canal is also acknowledged through the Canal Zone's commemorative 20-cent stamp.

Memphis bridge piers to be done ahead of time

Construction of the seven main piers of the new Mississippi River bridge at Memphis, Tenn., (*ENR* Nov. 7, 1946, vol. p. 610) and the abutment on the Tennessee bluff will be completed by May 1 if work continues to progress at the present rate, officials of Merritt-Chapman & Scott, Inc., contractors, said. This would be five months ahead of schedule.

Bridge officials report that piers Nos. 3, 4, 5, 6 and 7 and the abutment are 100 per cent complete, and that Pier No. 2, the first one in the river from the Tennessee shore, will be completed within the next 30 days. Workmen are now finishing the setting of about 43 ft. more of granite slabs on the face of the pier.

A caisson for Pier No. 1, which will stand right at the water's edge on the Tennessee side of the river, has been sunk 60 ft. Within the next 10 days air pressure will be inserted into the caisson and sandbags will assist in sinking the pier another 10 ft. to the required depth.

Last week the last of the main piers, No. 1 on the sloping Tennessee bank, was founded and sealed. The pier is protected to above expected high water so that no delay on the completion of the main river channel foundations is anticipated.

The firm of Modjeski & Masters, of Harrisburg, Pa., are general engineers on the project.

PHANTOM SEWER

A sewer line 752 ft. long, listed on the town maps of suburban Harrison, N. Y., since 1913 when it was supposed to have been installed, could not be found when it was needed recently.

The mystery developed when a house builder dug down eight feet searching for a sewer supposed to be four feet below the surface.

Town officials concede that the 752 ft. of sewer simply does not exist, that the manholes along the route are dummies and have merely deluded taxpayers into believing for the last 34 years that the sewer was there.

Although refraining from casting any direct implications, the Town Board instructed Town Attorney Orville C. Sanborn to take up the situation with District Attorney George M. Fanelli of Westchester County to determine if a fraud exists. Meanwhile, the town voted $1,500 for construction of the line.

N.Y. company would build gas pipeline to Ontario

Penn-York Natural Gas Corp., a Buffalo, N. Y., subsidiary of Cities Service Co., has asked the Federal Power Commission for permission to construct and operate a $1,235,610 pipeline to transport natural gas for resale in Canada, a company official said recently.

The spokesman said Penn-York would deliver gas it buys from the New York State Natural Gas Corp. to the Dominion Gas Co., Ltd., for sale in the Province of Ontario.

Facilities which Penn-York proposes to construct include a 65-mile pipeline from York, in Livingston County, N. Y., at a proposed interconnection with the New York State natural gas pipeline, to a point on the Niagara River near Lewiston, and a 1,200 horsepower compressor station.

The Dominion company, the official said, would construct a pipeline to meet Penn-York's line.

Mobile, Ala., takes bids for $4 million dock job

Bids on the first dredging operations in a $4,000,000 state docks expansion at Mobile, Ala., were received recently, but award of contracts is being withheld, pending ratification of the harbor line changes by the Chief of Engineers. Col. Mark M. Boatner, district engineer, said approval is expected.

Docks Director C. E. Sauls said an application would be filed immediately with the engineers for a permit to construct the first unit of the expansion, without waiting for the final go-ahead on the harbor line change. Three new berths—one slip and two marginal—will be built in the first phase of expansion.

The state proposes to move the west harbor line of the Mobile River eastward 60 to 70 ft. from Lipscomb Street so that ships berthing at the new docks will not extend into the river channel.

The first dredging operations, estimated to cost $200,000, will be to provide a channel to the new piers, and supply earth for filling in an old railway dock slip and making land for the new berths.

According to Director Sauls, the Docks Department might be in a position to advertise for bids for the general construction in February.

Ultimately, the plans call for seven or eight new berths, and Sauls said the department would proceed immediately toward acquisition of the land.

Expect report on Panama Canal for Congressional action in 1947

Extensive engineering studies now in progress aimed at expansion and protection of inter-ocean artery

The extensive engineering studies instituted by the Panama Canal at the request of Congress are advancing both in this country and in the Canal Zone, and it is estimated that a report will be made to Congress before the end of this year. The principal object of the Isthmian canal investigation is to determine the best means of providing for the growth of interoceanic commerce and the interests of national security. It includes a study of various route possibilities, and of various types of canals, a review of the authorized Third Locks project and of other lock canal possibilities at Panama and also consideration of the practicability of conversion of the lock canal to one of sea-level type. Revival at this time of the sea-level canal idea, often advanced in the past, is largely attributable to the potential dangers to the lock canal envisaged from new methods of attack.

Much work in zone

A large part of the investigational work is being carried on in the Canal Zone, where a large staff is at work under Col. James H. Stratton of the Corps of Engineers, reporting to Maj. Gen. Joseph C. Mehaffey, Governor, The Panama Canal. One of the most visible and spectacular phases of this work involves tests with a sea-level canal model a half mile long, complete with replicas of Balboa and Cristobal harbors and facilities for duplicating tidal variations. The model is built on a 1:100 geometric scale, the various scale ratios being as follows: Length, 1 to 100; area, 1 to 10,000; volume, 1 to 1,000,000; velocity, 1 to 10; time 1 to 10; rate of flow, 1 to 100,000.

The base of the model is a 4-in. reinforced concrete slab. It is built to the alignment of the present canal, although it is likely, if a sea-level canal were to be built, much of the angularity of the present lock canal would be eliminated. The slab forms the bottom, and curbs simulate the sloping banks. One of the curbs is adjustable to permit channel widths up to 1,000 ft. to be studied. The depth of the channel tested is 50 ft. below low tide at each end of the canal. Provisions are made for introducing the flood flow of the various rivers that empty into the canal. Each end of the model is equipped with a water circulatory system, and these two systems are connected by a 24-in. concrete pipe extending the length of the model.

The rise and fall of the tides at the Atlantic and Pacific ends are reproduced by electro-mechanical tide mechanisms. With the proper tidal ranges and cycles reproduced in the harbors, the resulting water levels and currents in the model canal are measured, and from them the behavior of the full-sized canal is predicted. A range of 20 ft. at Balboa and 2 ft. at Cristobal represent the conditions that produce maximum values of tides and currents.

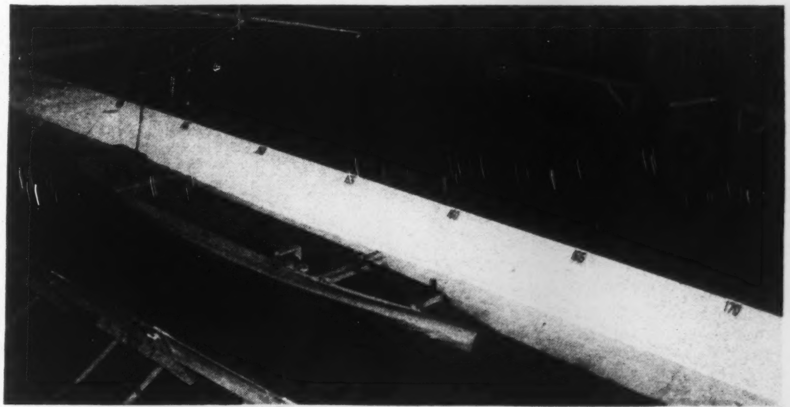
Other model studies

Model studies are also under way at the Navy's David Taylor Model Basin, Carderock, Md. This work is planned to provide new data on how ships act with varying canal widths and depth of water and alignments under various conditions of current. The studies are expected to provide data of interest to the Canal engineers and other groups.

At the Carderock laboratory self-propelled models of large ships are being employed. The general plan is to have the scale of the model to its prototype about 1 to 45, and the tests will be made in a channel of sufficient length to correspond to about one mile of the canal. A bottom width corresponding from 300 to 1,000 ft. in the prototype will be used. Side slopes of the waterway will be varied from 18 to 90 deg. to the horizontal. The depth of water in the canal will also be varied from about 45 to 100 ft.

Dredging studies

In addition to the model work and numerous analytical studies being made, three contracts have been awarded to groups of dredging contractors and dredging manufacturers for investigational work on methods and equipment that would be necessary to dredge at a depth of 135 ft. if the lock canal were to be converted to a sea-level type by a single-stage lowering of the summit lake. One of these contracts relates to hydraulic dredging and is held by a combination named the Panama Contractors, consisting of Gahagan Construction Co., Standard Dredging Co. and the Atlantic, Gulf & Pacific Co. A second contract is held by the Yuba Manufacturing Co. of San Francisco, Calif., experts in ladder dredges for deep gold mining operations. The third by the Bucyrus-Erie Co., which was allowed freedom of choice as to the type of dredge it should study, but its scope of investigation was limited to dredging hard materials to a maximum depth of 90 ft.



U. S. Navy photo

Restricted Channel Tests*—In order to speed investigations for the modernization of the Panama Canal, Army engineers have set up this model channel at the David Taylor Model Basin, Carderock, Md. The channel shown represents a full-scale channel 60 ft. deep and 300 ft. wide at the bottom, with an adjustable side-slope wall, here set at 45 degrees. The model represents a full-scale ship with a draft of 32 ft. 4 in., a beam of 113 ft. and a length of 900 ft., operating under its own power, supplied by a current from the towing carriage through flexible cables visible at upper left.*

World photogrammetry discussed in Washington

Photogrammetric practices and operations in many parts of the world were discussed at the 13th annual meeting of the American Society of Photogrammetry last week in Washington, D. C. A registration of over 600 was attracted by the international program.

Progress in photogrammetry in the U. S. was described by Leon T. Eliel, president of Fairchild Aerial Surveys, while John Carroll of the Department of Mines and Resources of Canada told of progress in his country. Photogrammetric operations in Mexico were described by Gen. Ramiro J. Perez Quintanilla of the Mexican federal government, and Edmond Straub of the Wilde Co. in Switzerland outlined Swiss operations.

A paper on the future of mapping in the Americas was also given by Andre Simonpietri of the Pan American Institute of Geography and History. Other technical papers dealt with new types of photographic lenses and the properties of the newer films.

Revere G. Sanders, assistant vice-president of the Fairchild Instrument and Camera Co., Jamaica, N. Y., was elected 1947 president of the society, which now has over a thousand members. He succeeds Gerald FitzGerald of the U. S. Geological Survey.

Other 1947 officers are: First vice-president, Edmond S. Massie of the U. S. Forest Service; second vice-president, Russell K. Bean of the Geological Survey, and secretary-treasurer M. Kerwin Linck, also of the Survey, who was re-elected.

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Maryland road budget over $15 million a year

Expenditure of $15,678,122.95 in the fiscal year 1948 and $16,050,248.95 for 1949 are projected in the Maryland State Roads Commission budget submitted Jan. 9 to the State Department of Budget and Procurement.

The proposed budget shows a $6,000,000 annual pay roll, nearly twice that in 1946.

It includes $1,890,000 in 1948 and $1,305,923.20 for contract work on "bridges, grade eliminations, roads, new construction, betterments and additions." This compares with expenditures of $3,565,712.91 from this account in the fiscal year 1946 when total commission expenditures were $13,982,575.24.

The 1948 construction figure is the amount needed to match federal funds which will be available that year.

Voided bonds not to delay freeways

Invalidation by the Illinois State Supreme Court January 22 of Cook County's $70,000,000 superhighway bond issue, approved by the voters last June 3, will cause no setback of the county's highway construction program for 1947.

Sufficient funds will be available from the county's share of gas tax revenues to pay all construction expenditures planned for this year, officials said.

An oversight by the county with respect to advance advertising for the bond issue election was the basis of the court's adverse decision. Notice of the election was printed in one newspaper 15 days before the voting date instead of in two newspapers 20 days in advance, as required by law, to inform county voters outside the jurisdiction of the Chicago election commissioners.

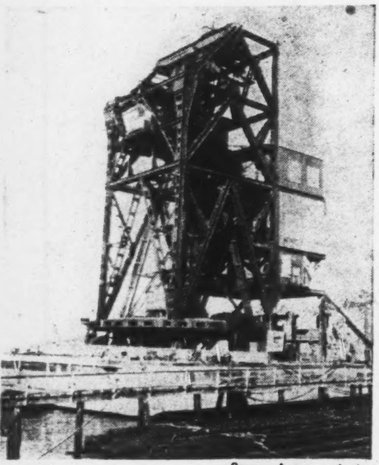
The court held that Chicago voters had received ample notice in legal form on six city bond issues totaling $115,600,000 approved by narrow margins in the same election last June. One of these city bond issues authorizes $42,000,000 for superhighways. The city now has full legal authority to issue bonds within the amounts and for the purposes approved by the voters.

President William N. Erickson of the Board of County Commissioners announced immediately that the bond issue would be resubmitted to the voters in proper legal form at the first opportunity, on Nov. 4, the date for the election of superior court judges.

Possible effects of the supreme court decision on property acquisition for county-sponsored sections of the West (Congress St.) superhighway have not yet been determined. The county, city and state will defray the costs of this highway on an equal basis, one-third to each. Before the state's highest court announced its decision, the county already had started condemnation proceedings for property on one of its two sections of the West superhighway.

Under a 1945-55 county program drawn up before the superhighway bond issue was proposed, the county had allocated to two express routes within the city limits $4,800,000 for the West Superhighway and $5,090,000 for the Northwest artery, although the latter road has not yet reached the stage of property acquisition. It is possible that the county will permit all or part of the $5,800,000 already ear-marked for the West Superhighway to be used for land purchase.

Construction of grade separations, bridges, storm drainage and thoroughfares for the Calumet and Tri-State superhighways for 1947 will proceed.



Press Assns. photo

Largest Floating Crane—Acquired by the U. S. Navy Civil Engineer Corps as a part of the division of German naval assets is this self-propelled floating crane, said to be the largest of its type in the world. One of four identical machines valued at $3,000,000 each, the crane is now being re-erected at Terminal Island, Calif. Of the jib-type, level-luffing construction, the crane has a lifting capacity of 350 tons, displaces 5,000 tons, has an overall height of 375 ft. at high boom. The rectangular pontoon on which it rests is 205 ft. long and 108 ft. wide.

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T. C. Frame resigns post as Penna. roads engineer

Thomas C. Frame, who was associated with the Pennsylvania State Highways Department almost continuously since 1911, and was its chief engineer twice, said last week he would resign his second term as chief engineer, effective March 1.

He will be succeeded by Edward L. Schmidt of Mt. Lebanon, who has been district engineer at Pittsburgh since 1939.

Mr. Frame resigned from the department first in June, 1943, after a 4-year term as chief engineer. He returned to the post last spring at the request of the then newly-appointed Secretary of Highways, Ray F. Smock, but with the reservation that he would remain on the job only until the end of the administration of Gov. Edward Martin.

Mr. Schmidt, who is credited with originating plans for the Penn-Lincoln Parkway now partially under construction in Pittsburgh, will be succeeded by J. Paul Ambler, now district engineer at Hollidaysburg.

Urge equalizing of state road salaries

Wide variations in salaries paid for the same engineering titles in the various state highway bureaus—variations of as much as $7,000 per year in one group alone—demand correction as soon as possible if the nation's highway building program is not to be impaired, a special committee of the American Association of State Highway Officials reported last week.

Headed by D. C. Greer of Texas, the committee was appointed some time ago to review the general situation regarding classification of employees in highway departments; comparing present conditions with federal classifications, and to recommend a model classification and compensation plan for highway department employees.

Although admitting the difficulties of making rigid classifications of employees in conformance with the federal classifications or even with those approved recently by the American Society of Civil Engineers (*ENR* Oct. 31, '46, vol.p.563), because of the differentials of living conditions and provisions of state constitutions, the group submitted a suggested classification of eight groups, conforming in general with the first eight groups of both the ASCE and federal systems.

The committee based its findings on reports from all 48 states, and from a detailed study of the ten large states that received the greatest federal aid appropriations. "In all states," the report said, "salaries for the same titles vary as much as $7,000 per year in a single classification. The differences in living conditions could in no way explain these differences, and, certainly, the efficiency of engineering personnel does not differ greatly from state to state."

The detailed study of the states of New York, Texas, Pennsylvania, Illinois, California, Ohio, Michigan, Missouri, Minnesota and Indiana (see accompanying table) demonstrated the wide variance between actual salaries now being paid by the states and those being paid by the federal government and recommended by the ASCE for similar classifications.

"The coming two years will see the greatest road building program ever undertaken . . . and we are . . . faced with a shortage of trained engineers. If something is not done immediately to hold the engineers we now have and attract new ones, it will be necessary to curtail . . . work and a drastic slowing down of . . . construction will follow.

"It must be recognized that a fixed salary range cannot be placed on groups that will apply to all states . . . but the difference that now exists between salaries . . . is far too wide.

"As an interim procedure, we suggest that all state highway departments make vigorous efforts to adjust their salary scales now. As a guide, the committee recommends the use of the federal government salary schedule as a minimum requirement until such time as the committee can make a final recommendation report."

In a comparison of present salary scales in ten states, the committee reported an average wage of between $1,500 and $1,945 being paid to the lowest grade of professional employees; with a top (classed as grade 8 in comparison with the federal scale) of between $7,945 and $9,030. Top federal scale calls for $10,000 per year, and the ASCE's Group 9 recommendation calls for salaries starting at $12,600 and having no upper limits.

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Seek higher wages for N. C. highway workers

The North Carolina General Assembly will be asked to grant higher salaries and more liberal retirement allowances at its current session, officials of the newly formed Highway Division of the North Carolina State Employees' Association said last week.

At a recent meeting of the association, representing employees of the ten highway divisions, a resolution was adopted asking the legislature to make the present $10 per month emergency salary increase a permanent part of salaries. Another resolution would provide for a systematic and automatic raise schedule to increase salaries every six months until the worker reached his top classification.

N. Y. State to improve Routes 17 and 223, Elmira

A $1,296,192.00 contract providing modern highway facilities on Routes 17 and 223 in the vicinity of Elmira, N. Y., has been awarded to the Bero Engineering & Construction Corp., of Buffalo, by Charles H. Sells, State Superintendent of Public Works. The project includes preliminary grading and drainage structures on a section of Route 17 extending from Elmira southeastward, on new location, for 7.37 miles to a point beyond Lowman. This section will be reconstructed with two 24-ft. traffic arteries separated by a central mall 20 to 30 ft. in width. Pavement and landscaping will be provided in a later contract.

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Louisiana to start big road improvements

The first major highway improvement program for Louisiana since the beginning of the war will get under way this year with an expenditure of approximately $39,000,000, according to P. A. Frye, director of highways.

This expenditure is roughly three times the amount spent in 1946.

Mr. Frye said that included in the new construction schedule for 1947 are 40 miles of concrete pavement, 70 miles of bituminous surfacing, 100 miles of aggregate surfacing and 25 major bridges and overpass projects. This work, he declared, will represent about $19,074,283. Maintenance of the present highway system will total about $14,438,586, state aid to parishes (counties) will cost approximately $867,000 and highway planning and surveys have been budgeted at $1,600,000.

Among the major projects listed are the substructure for the Moncla bridge over the Red River in Avoyelles parish, the Lake Charles (Calcasieu River) bridge substructure.

ROAD DEPARTMENT, FEDERAL, ASCE SALARIES COMPARED

Annual salaries (average) 10 state highway departments		Current federal employee wage rates		Current recommendations of the ASCE	
Grade	Rate	Grade	Rate	Grade	Rate
1	$1,500–1,945	P-1	$2,645– 3,400	I	$2,700– 3,400
2	$1,925–2,735	P-2	$3,400– 4,150	II	$3,400– 4,200
3	$2,044–2,870	P-3	$4,150– 4,900	III	$4,200– 5,100
4	$2,580–3,685	P-4	$4,900– 5,900	IV	$5,100– 6,100
5	$3,280–4,550	P-5	$5,900– 7,100	V	$6,100– 7,250
6	$4,000–5,870	P-6	$7,100– 8,180	VI	$7,250– 8,600
7	$5,005–6,980	P-7	$8,180– 9,970	VII	$8,600–10,350
8	$7,945–9,030	P-8	$9,970–10,000	VIII	$10,350–12,600
9	....	P-9	$10,000 and up	IX	$12,600 and up

ENGINEERING SCHOOL NEWS

Revised courses at Lehigh—Faculty additions at Cornell, Colorado and Georgia—Harvard's "mechanical brain" at work

Revision of the civil, mechanical, and industrial engineering curricula at Lehigh University, effective next fall, will include changes in present course content, introduction of 19 new courses, additional field trips, restoration of a four weeks' summer term at the end of the freshman year in land and topographic surveying and machine shop practice, and a required eight weeks of industrial employment between junior and senior years. Revision of these curricula follows a study of the problems of technical education and the changing needs of modern industry, conducted by a faculty educational policy committee.

Students will have the choice of three hours each semester during the junior and senior years to take general study courses from the fields of history, economics, sociology, government, literature, philosophy, psychology, biology, fine arts, and music. This elective is intended to extend the sequence in the humanistic-social field represented in the freshman year by the course "Development of Western Civilization" and in the sophomore year by the course in economics.

Eight new courses in civil engineering also will be offered for the first time in the fall. Undergraduate courses include two in transportation engineering, and one each in soil mechanics, hydraulic engineering, hydraulic machinery, readings in civil engineering, route surveying, and reinforced concrete design.

Four men have been added recently to the faculty of the civil and architectural engineering department of the University of Colorado. They are: Cameron Smith, Jack Maguire, Leslie Clayton, and Claude Klemme, Jr.

Smith, who will serve as assistant professor, received his doctor of science degree from Yale University, and served in the Navy during the war with the rank of lieutenant commander as ordnance ship superintendent at the Puget Sound Navy Yard.

Maguire is a graduate of the Colorado School of Mines, and since his graduation in 1942 has been employed on engineering jobs with the Standard Oil Co. of California and the Lockheed Aircraft Co. He will be an instructor in surveying and mechanics.

Mr. Clayton, after his graduation in 1941, was employed by the American Bridge Co. at Ambridge, Pa.; the Consolidated Vultee Aircraft Corp. to do work in aircraft stress analysis, and the Navy, where he served as lieutenant (j.g.) until May, 1946.

Following his graduation in 1944, Mr. Klemme was engaged by the Bureau of Reclamation in Denver to do design work. He joined the Navy and remained for two years, joining the university as instructor.

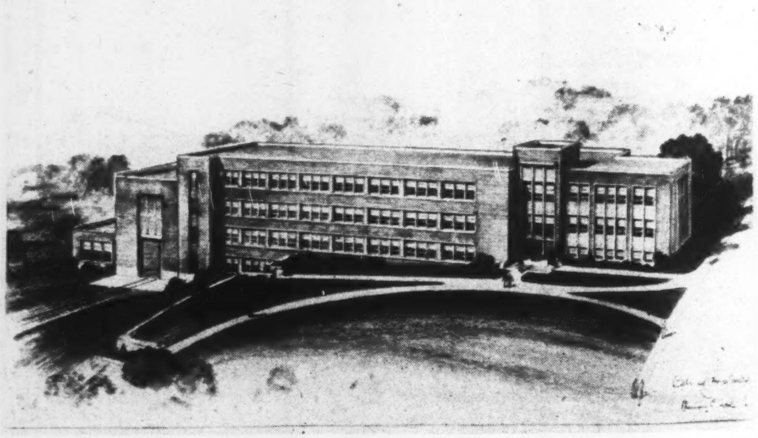
William W. Varnedole, Jr., David D. Tudeen and William F. Jamison, recent graduates of Georgia Tech, have been added to the instruction staff of the institute's department of engineering drawing and mechanics; Russell B. Parks is assistant professor in the English department; and Max Jaffe has become an instructor in the department of civil engineering.

Taylor D. Lewis, formerly of the staff of the Yale University bureau of highway traffic, has joined the teaching and research staff of the school of civil engineering at Cornell University as assistant professor. Professor Lewis's appointment, according to Dr. W. L. Malcolm, director of the school, is another step in the development of the undergraduate training available in transportation engineering at Cornell. As an integral part of highway engineering, traffic engineering is now included in this program.

Harvard University's famous "mechanical brain," or calculator, is now functioning in its new glass and brick building especially designed for it. The building is the first structure of the university's "science city". The building has a visitors' lobby, provided with a 30-ft. glass wall, which will allow visitors to view the calculator without interference with the 24-hours-a-day program of the operators.

The University of Buffalo's school of engineering will move into its new building in about three weeks, Dean Paul E. Mohn has announced.

The thirty-third annual road school at Purdue University, Lafayette, Ind., will be held Feb. 3-6, announces Ben H. Petty, professor of highway engineering and general chairman for the school. The road show, featured prior to the war in connection with the course, has been eliminated because of lack of housing facilities which has curtailed attendance. About 800 persons are expected to attend. Sponsors are the Purdue school of civil engineering and engineering mechanics and the technical extension division. Cooperating agencies include the state highway commission, state engineering, surveyor, and road commission groups.



***Civil Engineering Building**—Now under construction on the University of Washington campus at Seattle, the Charles Church More Building, shown in architect's sketch, will house the department of civil engineering. A wing already has been completed and is being used to house special testing equipment. The building bears the name of one of the department's best known professors, who went to the University of Washington in 1900 and, except for brief periods, has been on the faculty continuously.*

OBITUARY

Henry A. Van Alstyne, 74, retired consulting engineer and former New York State engineer and surveyor, died Jan. 23 in N. Y. City. He was graduated from Union College and began as an engineer in charge of sewer construction at Fort Plain, N. Y. He was state engineer from 1904 to 1907, and in 1919 became president and engineer of the New York State Dredging Corp., leaving in 1933 to become a consulting engineer.

Col. Roger Merrill, U. S. A., 64, died at Washington, D. C., Jan. 22. Colonel Merrill was one of the Army's chief property disposal engineers, and at the time of his death was on his way to Iran to superintend the disposal of surplus property there. He was graduated from Harvard in 1906 and immediately entered the regular Army. He was with the expeditionary force to Mexico in 1917, and in World War I was a captain of artillery, for a time in command of Fort Ethan Allen, Vt. In World War II he was at Stewart Field, the airport for the Military Academy at West Point.

Frederick A. Gardner, 62, Concord. N. H., a member of the State Highway Department for 25 years, died Jan. 14. He was graduated from Brown University. Before joining the highway department, Mr. Gardner was with the United States Forest Service.

Oscar Anderson, 82, Bristol, Conn., superintendent of public works for his city for 21 years, died Jan. 15. He was appointed superintendent of public works in 1911, and retired in 1932.

George R. Harvey, 57, senior member of Harvey & Son, Danville, Ind., bridge contractors, died Jan. 6. He was a graduate of Purdue University, and served as Hendricks County surveyor from 1920 to 1930.

William Brown, 67, superintendent of the Youngstown, Ohio, water department, and former superintendent of streets, street commissioner, and chief inspector of public works before joining the water department, died Jan. 14. He had been in the employ of the city 37 years.

Richard R. Metheany, 67, civil engineer and retired engineering executive of the Pennsylvania Railroad, died Jan. 14. He lived at Frazier, Pa. Upon graduation from the University of Michigan, he entered the engineering department of the railroad. He was assistant to the chief engineer of the eastern region when he retired less than a year ago.

Harry E. Weir, 64, civil engineer and former professor of civil engineering at the University of Oklahoma, died at Wildwood, N. J., Jan. 15. Mr. Weir was engineer for Wildwood and the boroughs of Wildwood Crest and Avalon, N. J. A native of Philadelphia, he was graduated from the University of Pennsylvania in 1905 and later served with the Philadelphia Bureau of Survey. He was named city engineer of Wildwood in 1912. He was a lieutenant in the Army Engineer Corps in World War 1. In 1919 he joined the faculty of the University of Oklahoma and had also served at the University of Mexico.

John Thornley Dingee, 71, one of the leading structural engineers in Philadelphia, Pa., died Jan. 15. Mr. Dingee had been associated with several large construction firms, including Henderson & Co. and Henry E. Baton, Inc. While with these firms he worked on the designing and construction of the Ritz Carleton and Adelphia Hotels, large homes and office buildings and the Northeast High School. For two years during World War II he was engaged in construction at the Philadelphia Naval base. Mr. Dingee was a member of the first class to be graduated from Northeast Manual Training School in 1893 and attended Drexel Institute and the School of Industrial Art.

William O. Harris, 54, president of the Builders Association, Los Angeles, Calif., and secretary-manager of the southern California chapter of the Home Builders Institute of America, died in Glendale Jan. 6.

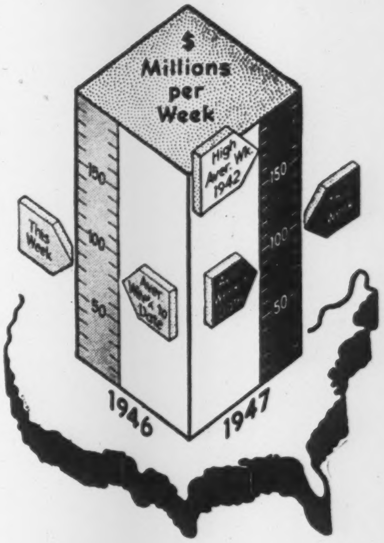
Archie G. Norcross, 58, engineer for for Maine State Highway Department for 28 years, died Jan. 16 in Bangor.

Burt Stuart, 68, city engineer and building inspector of Meridian, Miss., died on Jan. 10.

Frank S. Medland, 72, retired Logansport, Ind., building contractor, died Jan. 13. He built many schools, hospitals, churches, and business buildings in that area.

George Palmer, 70, former Logansport, Ind., road and bridge contractor, and one of the four Indiana men who began the construction of Miami Beach, Fla., died Jan. 14 in Miami. He went there in 1919.

CONSTRUCTION ACTIVITY



As Reported this week to . . .
Engineering News-Record

CONTRACT VOLUME

Continental U. S. Only
(Thousands of Dollars)

	Week of Jan. 30 1947	Cumulative 1947 (5 wks.)	Cumulative 1946 (5 wks.)
Federal	$25,334	$43,188	$40,173
State & Mun.	18,828	107,867	70,641
Total Public.	$44,162	$151,055	$110,814
Total Private	50,352	279,915	237,463
U. S. Total..	$94,514	$430,970	$348,277

WHERE CONSTRUCTION ACTIVITY ORIGINATED THIS WEEK

Dollar Volume (Thousands)

Type of Work	This Week	Cumulative 1947 (5 wks.)	Cumulative 1046 (5 wks)
Waterworks	$516	$14,858	$5,298
Sewerage	942	7,934	2,453
Bridges	1,480	9,573	10,159
Highways	7,541	38,565	35,956
Earthwork, Waterways	2,856	8,694	27,839
Buildings, Public	30,366	51,442	22,517
Industrial	13,415	77,680	106,794
Commercial ...	32,530	187,767	118,202
Unclassified	4,868	34,457	19,059

NOTE: Minimum size projects included are: Waterworks and waterway projects, $22,500; other public works, $40,000; industrial buildings, $55,000; other buildings, $205,000.

NEW PRODUCTIVE CAPITAL

	Cumulative 1947 (5 wks.)	Cumulative 1946 (5 wks.)
NON-FEDERAL	$108,413	$103,797
Corporate Securities	5,670	51,558
State and Municipal	102,743	52,239
FEDERAL	....	158,320
Total Capital	$108,413	$262,117

ENR INDEX NUMBERS

Index Base=100		1913	1926
Construction Cost..	Jan. '47	381.68	183.47
Building Cost.....	Jan. '47	288.78	156.11
Volume	Dec. '46	207	91

CONSTRUCTION REPORTS

Bids Asked — Low Bidders — Contracts Awarded

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.

ELSIE EAVES, Manager *J. A. MAHONEY, Reports* *J. V. McEWEN, M. R. ROESSLER, Statistic*

WATER SUPPLY

Construction Reports received since this section went to press will be found in Last Minute Construction Reports.

BIDS ASKED

Bids Asked February 6

Ill., Chicago—Dpt. P. Wks., 910 S. Michigan Ave., bulk carbon equip., North Basins, South District Filtration Plant, Div. A, steel tanks and concrete work, Div. B, pumps and piping. Plans deposit $10 each set.

Bids Asked February 7

N. J., Mt. Holly—Bd. Freeholders, Burlington Co., Mt. Holly, dam, Medford Lakes. Over $22,500. F. L. Branin, Mt. Holly, engr.

Que., Rawdon—Miss Therese Preville, village secy., WW sys. About $175,000. Lalonde & Valois, Canada Cement Bldg., Montreal, engrs.

Bids Asked February 13

La., Gretna—East Jefferson Waterworks Dist. 1, Jefferson Hy. and Arnoult Rd., P.O. Box 9068, Zone 20, New Orleans, East Jefferson WW addns. Plans deposit $25. Rolfs & Silverstein, Godchaux Bldg., New Orleans, archts. CD 1/13—ENR 1/16.

Bids Asked February 21

O., Cleveland—City, City Hall, Nottingham temporary pump. station and reservoir Chardon Rd. and St. Clair Ave. $750,000. Havens & Emerson, Leader Bldg., engrs.

Bids Asked February 24

†N. J., Dover—U. S. Eng., 120 Wall St., New York 5, N. Y., drilling wells, laying c.i. pipe, small well houses and chlorinator house at Picatinny Arsenal.

Bids Asked February 25

Tenn., Kingsport—City, c/o City Mgr., WW imprvs., incl. water filtration plant addn., laying lines for distr. sys., and pump. station addn. $750,000. Plans deposit $20. CD 10/29—ENR 10/31.

Bids Asked

R. I., Tiverton—Town, Stone Bridge Fire Dist., Stone Bridge Inn, 1 story, brick, steel water pump. station. Jenks & Ballou, 260 Industrial Trust Bldg., Providence, engrs. CD 10/17/45—ENR 11/1/45.

LOW BIDDERS

O., Reading—City, Dec. 28, water supply booster station, from Dawson-Evans Co., 5300 Vine St., St. Bernard, **$32,601*****elevated tank, from Pittsburgh-Des Moines Steel Co., Neville Island, Pittsburgh, Pa. **$17,980.** Alfred LeFeber, Temple Bar Bldg., Cincinnati, engr. CD 12/13—ENR 12/19.

Tex., Snyder—City, Jan. 14, rein.-con. water-reservoir, brick, concrete pump house, from Clovis Contr. Co., Clovis, N. M. **$26,474.** Est. $40,000. CD 1/3—ENR 1/9.

†Md., Carderock—Yards & Docks Annex, Navy Dpt., Arlington, Va., Jan. 22, steel water storage tank, Spec. 18075, and rein.-con. water treatment bldg. and portable water supply, Spec. 18079, at David W. Taylor Model Basin, from F. H. Martel Co., 920-17 St. N.W., Wash., D. C.. Bid 2 **$62,000** and **$87,870** respectively. CD 12/31—ENR 1/9.

CONTRACTS AWARDED

Ala., Fort Payne—City, c/o Mayor, Ft. Payne, watermain extens., incl. 41,220 ft. 2- to 10-in. c.i pipe, 16,000 lb. c.i fittings and 97 gate valves, own forces. **$70,000-$80,000.** J. W. Goodwin, Eng. Co., 726 S. 29 St., Birmingham, engr.

Ala., Mobile—City, c/o City Comrs., exten. WW sys. to serve Chateaugay Place, own forces. **$30,000.**

D. C., Wash.—Distr. Comrs., District Bldg., Wash., c. i. watermain in 7 St. N. W. between M and R Sts. and R St. N. W. between 5 and 6 Sts., to S. E. Dockstader Inc., Munsey Bldg., **$29,985.** Bids 1/6. CD 12/31.

S. D., Philip—City, water supply sys., to Owen Mann Constr. Co., Deadwood Rd., Rapid City. Approx. **$120,000.** Bids 1/3. CD 2/28—ENR 3/21.

Tex., Houston—Sam T. Robb & Assoc., Stewart Bldg., water lines, facilities, own forces. **$35,000.**

Tex., Houston—Southmore Properties, Inc., c/o Dan Schlanger, 1st Natl. Bank Bldg., c.i. water lines, facilities, own forces. **$41,000.**

Utah, Richfield—City, c/o Lizzie Hansen, city recdr., 1 m. g. rein.-con. reservoir, installing 2,500 lin. ft. 12 in. steel pipe, to W. E. Thatcher, 952 River Dr., Ogden. **$32,724.** Bids 12/18. R. G. Harding, 414 Utah Savings & Trust Bldg., Salt Lake City, engr.

Ont., Toronto—East York Twp., 443 Sammon Ave., watermains, to Yearley & Reed Ltd., 301 Cedarvale Ave. Est. **$35,000.** CD 6/12.

SEWERS, WASTE DISPOSAL

Construction Reports received since this section went to press will be found in Last Minute Construction Reports.

BIDS ASKED

Bids Asked February 6

Conn., Stamford — Town, Bd. Selectmen, Town Hall, 2500 ft. 18 in. vitr. clay sanitary (trunk) sewer pipeline, Magee and Shippan Ave. Plans deposit $25. CD 12/4—ENR 12/12.

Bids Asked February 11

Calif., La Mesa—City, City Hall, trunk sewer line and 2 pump. plants. $75,000. Plans deposit $10. H. L. Edwards, City Hall, La Mesa, engr.

Bids Asked February 26

Va., Culpeper—Town, at office R. W. Huffman, mgr., incinerator plant. Plans deposit $20. Wiley & Wilson, 907 Peoples Natl. Bank Bldg., Lynchburg, consult. engrs.

Bids Asked

Ont. Cardinal—Proctor, Redfern & Laughlin, engrs., 36 Toronto St., Toronto, sewage sys., for Municipality. Over $75,000.

LOW BIDDERS

Calif., San Diego—San Diego Co., Civic Center Bldg., Jan. 20, Lemon Grove trunk sewer together with branch line at Monterey Heights, Document 71184, from Carroll & Foster, Mission Valley Rd. **$68,810.**

La., Logansport—Town, J. R. Nash, mayor, Jan. 16, sanitary sewerage sys., from Barnet Brezner, Alexandria. **$82,300.** CD 12/26—ENR 1/2.

N. C., Charlotte—City, Jan. 15, Sugar Creek Outfall Sewer from Princeton Ave. to Southern Rd., from Blythe Bros. Co., 424 S. Brevard St. **$858,103.** CD 1/6—ENR 1/9.

CONTRACTS AWARDED

Calif., Long Beach—Lakewood Development Co., 4124 N. Marber St., installing sewers in new subdivision, Tract 13204, to Burch & Bebek, 2803 Los Flores Blvd., Lynwood. **$62,425.** Adam & Ells, 207 W. Valley Blvd., El Monte, engrs.

D. C., Wash.—Distr. Comrs., District Bldg., Wash., stormwater sewer, etc. Suitland Rd., 37 and 26 Pl., between Southern and Alabama Aves., to Intercounty Constr. Corp., 4720 Baltimore Ave., Hyattsville, Md. **$51,080.** Bids 1/8. CD 12/31.

Kan., Sublette—City, sewers, sewage purification plant, to Burt & Binford, 507 W. 2 St., Hutchinson. **$92,357.** F. E. Devlin, 2608 E. Kellogg St., Wichita, engr.

Pa., Phila.—Dpt. P. Wks., City Hall Annex, Sched. C-2, Wisshohickon Low Level Collecting Sewer, to Michael P. Ventresca, 6112 Ross St., **$47,122*****Sched. A-8 sewers, Murdock Rd., etc. and Sched. A-12 Woolston St., to Adam Leva, 145 W. Fern St., **$42,229*****Sched. B-6, sewers, Levick St., etc., to A. Di Sandro, 937 Unruh St., **$134,851.** Grand total $224,202. Awarded 1/17.

Pa., Phila.—Dpt. P. Wks., Thomas Buckley, dir., City Hall Annex, sewers Schedules B-2 Bustleton Ave., A-9 Passmore St., etc., and Schedules A-3 Hartekav St., etc., A-5 Lardner St., A-6 Magee Ave. to James D. Morrissey, 9119 Frankford Ave., **$49,633** and **$42,791** respectively***Schedule C-1, Cobbs Creek Intercepting Sewer, to Charles J. Corr, Widener Bldg., **$49,602*****Schedule A-2 Farrington Rd., etc., to Robert Lombardi, Real Estate Trust Bldg., **$124,343*****Schedule A-11 Woodbine Ave. etc., to Gus Mazzola, 414 N. Gross St., **$59,544.** Grand total $325,913. Bids 1/3, awarded 1/17. CD 1/9.

Tex., Houston—Sam T. Robb & Assoc., Stewart Bldg., sanitary sewer lines, own forces. **$56,000.**

Tex., Houston—Southmore Properties, Inc., c/o Dan Schlanger, 1st. Natl. Bank Bldg., sanitary sewers, own forces. **$52,000.**

Wis., Mauston—City, installing storm sewer, own forces. **$57,529.** General Eng. Co., Portage, engr.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterworks $22,500; other public works $40,000; industrial buildings $55,000; other buildings $205,000.

Classes of Construction

(Name in order of Listing)

- Water Supply
- Sewers, Waste Disposal
- Bridges
- Streets & Roads
- Earthwork, Waterways
- Latin America
- Public Buildings
- Commercial Buildings
- Industrial Buildings
- Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.;

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

†	Federal Government
★	Project of $1,000,000 or over.
ENR	Engineering News-Record
CD	Engineering News-Record Construction Daily

BRIDGES

Construction Reports received since this section went to press will be found in Last Minute Construction Reports.

BIDS ASKED

Bids Asked February 4

West Virginia—State Hy. Dpt., D. McClaugherty, secy., Charleston, St. Albans Bridge over Coal River 1585, north half of superstructure only, two 90 ft., two 120 ft. and one 150 ft., steel girder spans, ASIP F.I. 249 (11); Lewis Overhead Bridge 1649, Contr. 2, north half of superstructure only, one 45 ft., two 70 ft. and one 113 ft. steel I-beam spans, FAIGC, IP FGI-249 (12), both Kanawha Co.

Bids Asked February 7

Minnesota—State Hy. Dpt., St. Paul, Bridge 5920, three concrete deck girder spans, 119 ft. long, over Sandy River, 13 mi. north of McGregor, S.P. 0012-05 (T.H. 65-5) FAP 412 G-(1); Bridge 6504, over Elm Creek, 4.2 mi. north of Sherburn, S.P. 4602-05 (T.H. 4-84) S 132 (3), both Plans deposit $1.40; Bridge 6442, over Vermillion River, 3½ mi. north of Hampton, S.P. 1906-05 (T.H. 52-116) F-914 (2), Plans deposit $1.25; Bridge 6449, 40 ft. long, over Poplar River, 4.6 mi. north of junction T.H. 2, S.P. 6909-03, (T.H. 59-174), FAP 466 (6); Bridge 6601, 35 ft. long, over South Fork of Roseau River, S.P. 6806-06 (T.H. 89-136) S-288 (2), Plans deposit 90c each; Bridge 6441, three concrete slab spans, 92 ft. long over County Ditch 22, 6.7 mi. north of Montevideo, S.P. 1206-07, (T.H. 29-38) F-228 (4), Plans deposit $1.60; Bridge 6552, same, and widening concrete deck girder span 40 ft. long over Judicial Ditches 6 and 12, 7 and 8.8 mi. south of Benson, S.P. 7607-04 and 07 (T.H. 29-38) F-48 (3), Plans deposit $2.35. E. J. Miller, bridge engr.

Bids Asked February 13

Tex., San Antonio—City, G. B. Mauermann, mayor, rein.-con. vehicle and pedestrian bridge across Apache Creek on S. Laredo St. $45,000. M. L. Diver, 1104½ Main St., engr. CD 7/31—ENR 8/22.

Bids Asked February 17

Ill., Wood River—Illinois Terminal Railroad Co., at office, J. L. Loida, ch. engr., 710 N. 12 Blvd., St. Louis, Mo., constructing substructure for railroad bridge consisting two 60 ft. deck girder and one 168 ft. thru-riveted truss spans over Wood River, near here.

Bids Asked February 18

Ont., Meaford—Town, C. E. Bennett, clk., F. S. Knight, mayor, bridge and approaches over Big Head River at Harbor St. leading to Canadian National R. R. station. Approx. $65,000. C. C. Parker, 63 John St. S., Hamilton, engr.

Bids Asked February 19

California—State Div. Hys., Sacramento, rein.-con. slab bridges across Kern River about 6 mi. southwest of Bakersfield, Kern Co.; across Arcade Creek on Madison Ave. about 10 mi. northeast of Sacramento, Sacramento Co.; rein.-con. slab bridge and reconstructing rein.-con. bridge across Moody Slough about 2 mi. northeast of Winters and at Cache Creek about 0.2 mi. north of Capay,